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OF

CALCUTTA.

2

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NOTICE.

It has frequently been urged that there is unnecessary delay in publishing our papers. The date of the first of this series is less than a year back, April, 1844; the date of the last, January 6th, 1845, it is clear therefore that there has been no delay here. Every paper has been presented at the first meeting after its arrival in Calcutta.

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1844.

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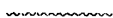
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ON
THE EFFECT OF
CHANGE OF CLIMATE ON THE HEALTH OF
THE NATIVE ARMY.

By C. FINCH, Esq., M. D.

PRESIDENCY SURGEON.

READ 6TH APRIL, 1844.

It does not appear, from inquiries made at the office of the Quarter Master General, when the present system of relieving the Native Army was first established. It is of uncertain date. Its existence cannot be traced to an earlier period than forty years ago, when the increase of our army, and cessation of hostilities, permitted the withdrawal of a portion of our force from the frontier to replace others that had been stationed in the more central and settled parts of our territories. Whatever may have been the date of the present system of relief, it is certain that to the present period there has been nothing done to ascertain the effect of change of Climate upon the health of our Native Troops, incidental to this system of cantoning them; for so late as the year 1835, the late talented and zealous Dr. John Malcolm, the Secretary of the

Medical Board at Madras, remarked the total want of information as to the effect of change of climate upon the health of the Native Army, the diseases produced by a removal from the dry climate of Hindostan to the moist one of Bengal, the period of residence that is necessary to habituate the troops to the new climate, or the time required to re-establish the health of a regiment deteriorated by a residence or service in Bengal. From that year to the present, there has no further attempt been made to supply the desired intelligence beyond a report I presented to Government in July, 1840, on the sickness and mortality of the troops at Barrackpore, which had its origin under the following circumstances :

On joining the 57th Regiment, N. I. in January, 1840, then at Barrackpore, and finding that there had been great sickness and mortality in the corps, and that there were still many sick and numerous casualties, I felt it incumbent on me to spare no pains to ascertain the causes of the prevalent sickness and mortality. In following up my inquiries, I also found that the sickness instead of being casual was permanent at Barrackpore, and that instead of being confined to the corps of which I had charge, it was equally prevalent in the 3rd and 58th Regiments N. I.

My inquiries accordingly were extended to the causes of the sickness in these corps, and instead of being limited to my own regiment became general. As the mortality was not accidental they were directed while tracing its source in that year, to the paramount object of ascertaining what are the circumstances

which have so permanent and pernicious an influence on the health and lives of the native soldiery stationed at Barrackpore.

The results of these researches were embodied in a report on the sickness and mortality of the native troops stationed at Barrackpore and presented through the Medical Board to the Commander-in-Chief, Sir Jasper Nicholls, and by him brought to the notice of Government. His Excellency was requested to appoint a committee consisting of three field officers, the Superintending Surgeon and myself, to enquire into the statements of my report, to ascertain their accuracy, and to suggest such remedial measures as the committee might consider would conduce to counteract the prevalent causes of disease and death at Barrackpore.

The committee confirmed the results of my individual inquiry, and adopted the principal measures I had recommended in their report to Government, which led the Governor General by a resolution in Council to direct the substitution of a biennial for a triennial relief, which was an alteration I had represented to be of the utmost importance, and to which all the other proposed changes were very subordinate. Three years have elapsed since this resolution of Government has been acted on, and I trust I shall be able to shew the wisdom and policy of its adoption.

The report I allude to is made the basis of my present paper, and as three years have elapsed since its delivery, I have been enabled to obtain additional evi-

dence of the deteriorating effect of change of climate from the Upper to the Lower Provinces on the health of our native troops.

The present subject being of a more general character, I purpose to discuss under two heads :

I. The effect of change of climate on the health of the native army, embracing a brief summary of the diseases that are produced by the change from the dry climate of Hindostan to the moist one of Bengal.

II. The period of residence necessary to produce disease, and the period necessary to restore the health of a regiment which has been deteriorated by residence or service in the unhealthy climate of Bengal.

Of the Climates of Bengal and Hindostan.

The Presidency of Bengal is divided geographically into Upper and Lower Provinces, nor is this a mere arbitrary and artificial division, it is a strongly defined and natural one, a range of hills running east and west forms the boundary of the one and the limits of the other.

These divisions greatly differ in climate, soil and natural productions, and in the physical constitution and diseases of their inhabitants.

Hindostan includes all the provinces north of Rajmahal, including the northern part of Behar to the foot of the Himalayan mountains.

Bengal all the country to the south stretching as far as the Bay of Bengal or embouchure of the Ganges, west and south-west to the provinces of Orissa, and east to the Sylhet hills and Burrampootra.

The great dissimilarity of climate between the Upper and Lower Provinces is in temperature and humidity. The mean annual temperature of Bengal, calculated from observations made at the Office of the Surveyor General during a period of five years, is 78° . The extreme annual range of the Thermometer at Calcutta, in the open air, is from 40° to 110° or 70° , under cover it is but $38^{\circ} 8$. The mean weight of the atmosphere during a series of six years was 29.764. The mean annual range of temperature is $38^{\circ} 8$. The average quantity of rain that falls in Bengal is variously estimated from 60 to 70 inches throughout the year, the larger quantity probably is the more correct approximation. The soil is alluvial, consisting of a substratum of clay, covered with a rich black mould retentive of moisture and favorable to perennial vegetation.

The predominant winds are south-west and north-east and generally blow very steadily during alternate six months; the south-west monsoon from April to October, when it is succeeded during the intervening portion of the year by the north-east. The south-west blowing over a large oceanic surface comes loaded with moisture, and is cool and refreshing to all animated nature during the hottest period of the year, and moderates the otherwise intolerable heat of the climate of Bengal. To it we are indebted for the cool and agreeable nights we enjoy in Bengal in the hottest months of the year, during which the nights in the Upper Provinces are sultry, calm, and exhausting.

In Bengal heavy dews predominate throughout the year, more especially in the months of April, May and June, and thick dense fogs in the cold months from October to February.

The general surface of Bengal is flat and very little higher than the level of the sea, the tides rising as far as Sooksaghur, a distance of 140 miles from the sea, and are felt at Dacca, a distance of 100 miles inland. The country is covered with wood and jungle, or low trailing brushwood, which has a very decided influence on the temperature and humidity of its climate.

It is intersected by numerous large rivers, in every direction, with innumerable tributary streams or nullahs, jheels or morasses, and in the rainy season during the annual inundation $\frac{1}{2}$ ths, are said to be under water to which it owes the fertility of its soil.

The mean annual temperature of the Upper Provinces, from tables containing observations made during five years from 1837 to 1841 inclusive, at Surrowli, a canal station about ten miles north of Delhi and 600 feet above the level of the Sea, is 70°.

The extreme annual range of the Thermometer is 50° and the mean annual range of the same instrument is 38° 2.

The annual fall of rain exhibited by a quinquennial series of observations made at the same place is but $24\frac{1}{2}$ or 25 inches.

This includes the rainy season of 1837, during which but ten inches are registered, and was the year of the last fearful famine. The soil of the Upper Provinces

generally is a light sandy alluvial, on a stratum of kunkur or limestone, and in many parts highly impregnated with salts.

The predominant winds are easterly and westerly in Behar, they follow the course of the river, which runs east and west, but on a quinquennial series of observations made during the year 1838 to 1841 inclusive, the westerly were to easterly, and to winds from all the other points of the compass, as two to one.

During four months of the year, the westerly wind, comes sweeping over the sandy burning deserts, to the westward of Hindostan, and parches up all vegetation ; and converts the Upper Provinces, into one arid and scorched up plain. These winds, (the hot winds of India,) prevail during the season, the south-west blow in Bengal, and have an equally marked influence on the climate and surface of the earth, but in the opposite extreme ; while the south-west is cool and refreshing, the westerly winds are hot and overpowering and ungenial to vegetation.

The westerly winds after the sun's declension, and the decline of the rainy season, are during the latter months of the year, cold and bracing, and afford some compensation for the previous relaxing and exhausting effects on the system, and during this season, the Upper Provinces enjoy a perennial spring, with a clear and serene sky, with moderate heat during the day and cold nights. The paramount power of winds, in modifying climate, is very strongly exhibited in the varied effects of the westerly winds of Upper India, blowing from the same quarter, over the same coun-

tries, and with equal strength and steadiness ; they are cold and invigorating during one portion, and hot and exhausting during the other part of the year, and seem to constitute the influential cause of the hot and cold seasons of these provinces. There is another very marked modifying circumstance in relation to the climate of the Upper and Lower Provinces, while there is a heavy deposition of dew in Bengal during April, May and June, there is a total absence of it in Hindostan during the same months of the year. There is an equal absence of fogs during the cold season in the Upper Provinces, which renders the mornings clear and pleasant after the cessation of the periodical rains, and must render this season more salubrious than the corresponding months in Bengal.

From what has been said of the distinguishing features of the climates of the Upper and Lower Provinces, we draw the conclusion, that the combination of heat and dryness is characteristic of the climate of Hindostan, and a union of heat and moisture characterises that of Bengal.

It is established that these combinations have a very dissimilar influence on the health of bodies of men or individuals, while a combination of extreme heat and dryness is found not incompatible with the enjoyment but even favorable to health (witness the influence of the hot winds in Upper India), the union of heat and moisture is prejudicial to health in all latitudes.

The effects of these combinations, are strongly illustrated in the change observed on the health of the Native Troops when removed from the Upper to the

Lower Provinces. It has been noted that the union of heat and moisture is prejudicial to health, and that this combination is characteristic of the climate of Bengal.

To its geographical position, being nearly on a level with the sea, and partly within and partly without the tropics, Bengal owes its high, mean, annual temperature. And to the prevailing southerly winds, the heavy dews, predominating throughout the year, the fogs prevalent in the cold season, the more frequent, violent, storms of wind, and heavy rain, the earlier setting in, and longer continuance of the rains; the greater quantity of rain, that falls throughout the year;—to the greater number of the rivers, tanks, jheels, and other numerous reservoirs both of stagnant and running water, the annual inundation and rise of the rivers; to these, added to a soil retentive of moisture and giving nourishment and growth to a perennial and luxuriant vegetation, Bengal is indebted for the dampness and humidity of its climate.

To the nature of its soil, which is either sandy or calcarous, the prevalent westerly winds, throughout the year, the absence of dews in one season, and of fogs in another, the less rain, the later commencement, and shorter duration of the periodical rains, the rarity of violent storms, the comparative scarcity of wood, and the freedom from inundation, Hindostan owes the dryness and aridity of its climate.

I.—*The effect of change of Climate on the health of the Native Army, &c.*

The records of the medical department of the army, have long attested, that there is a much greater ratio, of sickness and mortality, among the native troops stationed in the Lower, than in those cantoned in the Upper Provinces; and that this is more especially the case, with those occupying certain stations in Bengal.

This fact is not confined to the journals and returns of the Medical Board, but has for many years been familiar to the observation of both men and officers, and is regarded as a necessary consequence of their removal, from the Upper to the Lower Provinces, and is contemplated by the troops, as the usual attendant on service in Bengal.

Of the stations in the Lower Provinces, Barrackpore, Dacca, and Chittagong have for a long period been regarded as the most unhealthy and fatal to the troops stationed therein; and indeed so justly do they deserve this character, that few regiments leave them, without having been decimated by disease, and death, during a triennial period of residence at these stations; and none without having had their efficiency materially diminished by sick, by absentees on sick-leave, and casualties.

The first division of my subject embraces the effect that change of climate has on the health of the native troops, and as far as practicable the degree in which they suffer in sick and casualties whilst stationed in Bengal.

While we possess in Sir W. Annesley's valuable volumes the ratio of mortality among European troops in every division under the Bengal Presidency, we have not (as far as I am aware) any authentic statements in reference to the health or sickness of the native troops, at the several stations of the army either in the Upper or Lower Provinces.

It may be deemed necessary, in order to obtain a correct estimate of the relative degree of sickness and mortality occurring among the native troops, in Bengal and those in Upper India, that a comparison should be made on a comprehensive scale, of the sickness and casualties of the divisions above, with the sick and deaths of the force stationed below ; but not having access to the extensive returns, requisite for this purpose, I have been obliged to confine myself to making a more limited comparison, but which will afford an equally correct approximation to the real difference in the health of troops, cantoned above and below. As correct standards of the relative salubrity of different localities, the value of the general return of the sick of divisions depends upon the accuracy of each subordinate return, of which it is composed, so each constituent return of the sick of a corps of one division, brought into comparison with that of another in a different division, affords an equally correct index, of the degree of health they enjoy at their respective stations. A limited comparison therefore may furnish an equally just criterion of the salubrity of climate or locality, as one on an extensive scale.

I shall institute a comparison between the health of a regiment, cantoned for a certain period of years, at a station in the Upper Provinces, and the same regiment stationed, for nearly an equal period at Barrackpore. Though our observations are more limited, this mode possesses some advantages over that made by comparing the state of health of several corps.

There is one source of fallacy obviated, in making more extensive comparisons, the casual visitation of disease and mortality in any one corps greatly increases the number of sick and deaths in the return of the division, to which it belongs; and for that period vitiates this return, as a fair index of the influence of locality and climate, on the body of troops embraced in it, and as a standard by which to institute a comparison with the return of any other force not similarly visited. Besides excluding this occasion of error, there is an especial advantage in following this mode, in the present enquiry, by making a comparison of the effects of a change of locality and climate, of the same regiments above and below, it will render apparent, how the same individuals, not being subjected to any other influences, than those we are desirous of ascertaining, are affected in their health by removal from a station in the Upper to one in the Lower Provinces.

With these impressions, I have selected three corps that were stationed at Barrackpore during the years 1838, 39 and 1840, and in order to ascertain, by a glance, the effects of change of stations on the health of these regiments, I have thrown into tabular forms

abstracts of the registers of the sick for a period of three years they were at a station in Upper India, and abstracts of the registers for the period they were cantoned in Bengal.

These tables require but little explanation, they include a series of three years, the ordinary period during which a corps is stationed at one place, and are drawn from the registers of the sick, and contain only the actual admissions into hospital for each month; the first part exhibiting the annual admissions into hospital, for each successive year the Regiment was at its last station, the latter the number of sick admitted into hospital from its arrival at, to the period of its departure from, Barrackpore.

The first exhibits the extent of sickness which occurred in the 3rd Regiment, N. I. at Mynpooree, during the years 1835, 1836 and 1837, including the months of January and February 1835, the corps was in the Shakawatee country.

For the year 1835 the ratio of admissions into hospital was $44\frac{1}{2}$ per cent. to the strength of the Regiment; for 1836 the sick were $43\frac{1}{3}$ per cent.; and for 1837 the percentage of sick to the strength was $52\frac{1}{3}$; for the years 1838 and 1839 the admissions into hospital have been respectively to the strengths as $64\frac{1}{4}$, and $93\frac{5}{6}$ per cent.; and for the ten months ending in October, 1840, a percentage of sick to strength of $64\frac{2}{3}$.

The second table represents the degree of sickness experienced by the 57th Regiment, N. I. during its stay at Benares, for the years 1835, 1836 and 1837, which is

severally as $46\frac{2}{3}$, $44\frac{2}{3}$, and $53\frac{2}{3}$ percentage of the strength of the regiment compared with the numbers admitted into hospital: during the location of the 57th Regiment at Barrackpore, including a period of two years and eleven months, the ratio has augmented to $62\frac{1}{7}$, $96\frac{1}{2}$ per cent. of the strength for 1838 and 1839, and for the eleven months ending in November, a percentage of $115\frac{6}{11}$ the third of its stay at Barrackpore.

It has not been in my power to obtain the returns of the sick of the 58th Regiment N. I., while cantoned at a station in the Upper Provinces, in consequence of the hospital records not being extant, prior to the year 1835.

I am compelled to have recourse to the registers of sick for a period they were at another station, in Bengal, but this period corresponds with that included in the tables of the other two corps, and refers to the years immediately preceding its arrival at Barrackpore. Though it will not furnish us with an estimate of the relative degree of health, of the Regiment when cantoned in Upper India, it will afford us a means of comparing the degree of sickness it suffered there, with that it experienced at Barrackpore; though the rate of sickness is higher than either of the regiments that came from Hindostan, still how much greater is the amount of sickness since the corps moved from the banks of the Burhampooter to those of the Hooghly.

These tables exhibit an increasing rate of sick each successive year, and the third year's residence is by far the most sickly, while the annual percentage of

sick to strength has been upwards of one half, during each year of its stay at Jammaulpore. In 1839, it amounted to $97\frac{1}{8}$ of sick to effective men, and reached 62, for nine months, in the year 1840.

Much misapprehension may arise if the average sickness during the first two years' stay of a regiment in Bengal, is assumed as a measure of the salubrity of the Lower Provinces. In some corps, by confining our observations to the first two years, the rate of sickness may not be greater than at a station in the Upper Provinces; but the triennial period of residence, between the reliefs, is the only just standard to be taken, in making a comparison of the relative degrees of salubrity of different climates; and indeed a longer period might be fixed on for greater accuracy, but that taken is the usual length of stay at one station.

In order to exhibit the extent of mortality, which occurred in the corps while at Barrackpore, I shall pursue the same mode of comparison, as I have done in reference to the degree of sickness experienced by them. And in drawing up these tabular forms, I have availed myself of the numerical lists of casualties which have been obligingly furnished me by the regimental staff. These lists are much more complete returns of the mortality of corps, and correct standards, by which we can judge of the relative losses sustained by different Regiments, than the returns made by medical officers to Superintending Surgeons, as they include merely the deaths within the walls of their hospitals, while those furnished by regimental staff, include the casualties which have

occurred among the men on sick leave, of whom it often happens a great proportion die, either on their way, or at their homes; and these deaths are as attributable to the influence of locality and climate, as those of their comrades, who die on their charpoys in hospital.

The casualties occurring among the men on sick leave swell greatly the aggregate of mortality, and often occasion a vast difference between the medical and military returns of deaths in corps, but as I have said, the latter afford more correct results, of the influences to which the regiments have been exposed. It must be recollected in reference to these tables, that while the first period contains the list of casualties for three entire years, the second includes only those for a space of two years and some months.

During the three years' residence of the 3rd Regiment N. I. at Mynpooree, the corps lost by deaths but 26 men; during its stay in Bengal the casualties amounted to, (in the three years inclusive of the last two months of 1840, while on their march to Mirzapore,) not less than 203!

The first circumstance which strikes us in examining the table of casualties which the 57th Regiment N. I. has experienced, for the periods referred to in the table, is the very great increase in the second period, while it lost but 35 during its stay at Benares; the deaths since its removal to Barrackpore are not fewer than 240!

The number of deaths in 1837, the third year of their stay at Benares, amounted to 2 per cent. of the strength; it more than quadrupled that in 1839,

and in 1840 the percentage of deaths was more than double that of 1839 ; or the deaths were in 1840, the third year of their residence at Barrackpore, ten times more numerous than in 1837 ; they were several-ly as 15 in the latter, to 150 in the former year !

In looking at the loss which the 57th Regiment N. I. has suffered, it should be taken into consideration that this corps had been lately strengthened by the addition of 200 raw hands from Oude, on these a large portion of the mortality has fallen, so that it is probable, there was a greater proportion of young to old men, and it is a well established fact, that old soldiers bear the vicissitudes of seasons and change of climate better than recruits.

It will not escape observation, that while occupying another station in Bengal, the 58th Regiment did not lose a greater number of men, than the other two Regiments, that came down the country, indeed (excluding the casualties from cholera of the 57th Regiment N. I. at Benares,) about the same number. During the three years of its stay at Jumaulpore, it lost not more than 24, while the percentage of its casualties for the year 1839 at Barrackpore, is nearly six times as great, as for the year 1836 : the year of its greatest loss at Jumaulpore. And for the year 1840, is more than double that of 1839. Its total loss in the 3 years at Barrackpore, out of an average strength of nearly 900 men, has been not less than 208 !

Confirmatory of the fact that a greater proportion of the casualties has fallen on young men, I have appended tables, showing the ages of the men who

have died in hospital from January, 1839, (prior to which no account of the ages of the sick entering hospital was kept,) to April 1840 inclusive. From them it will readily be perceived, that the deceased have chiefly been under, or within the first decennial period ; and that the 57th and 58th Regiments lost an equal proportion ; about $\frac{3}{5}$ ths of young sepoys out of their total loss from January 1839 to April 1840.

In the 3rd Regiment N. I., the total number of deaths in hospital, from January 1839, was 36 ; of whom 26 were in the first decennial period, between 20 and 30, including those under 20. Of the 57th Regiment the casualties of the same description of men during the same period have been 65, out of 107.

In the 58th Regiment N. I. the numerical proportion of those between the ages of 20 and 30, and under 20, to those above, is as 43 to 28.

This disproportionate mortality of young to old men is dependent not only (as I have already said,) on the greater power of old sepoys to resist the approaches of disease, but also on their strength of constitution, to rally, after the attacks they have been subjected to ; whereas the recruits are young lads, who enter the service in a great measure from necessity, have endured the cravings of want as their appearance on presenting themselves for enlistment often bear testimony to. They are in this condition marched down the country, many hundreds of miles, to join their several regiments ; when experiencing a change of circumstances from comparative want to repletion, they become obnoxious to the attacks of fever, &c., and

with bodies defective in stamina possess no strength of constitution to aid their recovery. Their existence after their arrival at the head-quarters of their regiments, is too frequently consumed between sickness in hospital and convalescence in the lines. No length of time elapses after their discharge from hospital, ere they experience a return of their former complaints; or having made no progress in convalescence, they become subject to new ones. Hence it is that so many men are re-admitted into hospital with returns of ague, or suffering under intermittents complicated with diarrhoeas, dysentery or spleen. Auxiliary to this increment of mortality among the young sepoys, it ought to be stated, that besides being deficient in physical ability to withstand or rally after disease, they early lose hope or confidence; and readily give themselves up a prey to chagrin and despair. And how much these influence the termination of diseases, especially those of debility, as spleen, and bowel complaints, every observer knows? These lads long after their homes, and unless permitted to revisit them, droop and pine away their existence. It appears that the extent of mortality in these corps yearly, was pretty nearly equal, while at their former stations, and with the exception of the third year, the 57th Regiment N. I. was at Benares, when it was visited by cholera (already alluded to), the annual number of casualties in each corps did not greatly vary.

Of the external agents that have an influence on the health of individuals or bodies of men, climate, without exception, is the most powerful.

To the effects of an uncongenial climate on the health of our native soldiery, rendered more susceptible by a prolonged residence in Bengal, the attendant sickness and mortality is to be referred. Many are inclined to attribute the great sickness in the native army, while stationed in the Lower Provinces, to other causes than to change of climate, and assign much influence to subordinate agents, as change of food and water.

I am of opinion, that too much influence has been ascribed to the change of food and water, consequent on removal from Hindustan to Bengal. I limit its power to occasioning a predisposition to disease, and causing tardy and unsatisfactory convalescence of the sick. However, as I find much stress is laid on this change of diet by others, it will be proper to examine this subject more minutely and ascertain what grounds there are, or if there be any, for this opinion.

On removal from the Upper to the Lower Provinces, the sepoy exchanges his wheaten bread for a mess of rice, some few may use unmixed attah, while many use a mixed flour of wheat and rice. With their rice diet, they combine the use of several kinds of dhal, as the Urhur, Mussoor, Oord, Kissaree and Moong-ka-dhal; and occasionally render it more palatable by an admixture of indigenous vegetables, such as pulwul, kureelah, kudu, koomrah, and acclimated ones, as potatoes, greens and cucumbers.

The sepoy generally eats but once a day, the hour being dependent on his duty. If off duty he chooses

noon or mid-day. When hungry in the evening, they finish any residue from their morning repast, or satisfy their appetite with suttoo, or chabenah (ground gram, roasted gram.) He does not consume much ghee in Bengal, as it is more expensive, and he imagines it is less nourishing, than the ghee of the Upper Provinces. Much stress has been laid on this change in his diet, as a principal cause of the sickness to which he becomes subject in Bengal. It is probable that too much influence has been attributed to this alteration of diet, which though sudden, has no immediate effect on his health, as we see by the hospital returns. It is also probable, that the change has been too much insisted on; though the general body of sepoy's assuredly make the difference in their diet, many continue the use of attah, nor do the men who continue the use of attah, enjoy a greater immunity from disease than those who feed on rice; which fact I ascertained, by frequent enquiries of the sick, admitted into the hospitals of the several regiments already mentioned.

Nor does there seem to be so great inducement as many suppose for the change of food. There is not that great difference in the price of the grains, to induce the frugal sepoy to substitute the one for the other, nor is there generally any scarcity of attah. It is abundant in the regimental and sudder bazars. Its usual price is 16 seers per rupee, about 2 seers less than what is procurable for the same money at Cawnpore, and other large stations in the Upper Provinces; but at this price it is impure. This leads to a just complaint that there is great difficulty in

procuring pure attah at the station. The bunneahs are obliged, in order to secure a moderate profit, by selling it at this rate, to adulterate it with ground rice, which practice is common to the whole fraternity, and is not easily detected by the eye.

Adulterated attah when moistened with water appears whiter than the unmixed; rubbed in the palm of the hand the unadulterated feels soft and unctuous, the mixed is rough and gritty, by a more careful examination and simple process, the adulteration is detected in the manner we might anticipate. The unmixed flour containing more gluten is readily soluble in cold water; that containing ground rice in its composition, having less gluten, but abounding in the amylaceous principle, is readily soluble in warm, and with difficulty in cold water. The difference in the composition of the two flours evinces itself in making them into bread. The adulterated attah when moistened with water, is with difficulty kneaded into dough, preparatory to being made into chuppatics, or hand-bread. The chuppatics made of attah, free from any admixture, are tough, elastic and tenacious; those made of flour adulterated with rice, are very friable, non-elastic, do not admit of being torn into strips, but crumble in pieces in the attempt. The chuppatics (or hand-bread) made of good attah, have a strong and pleasant flavour, which those of mixed flour have not.

These grains when unmixed are not difficult of digestion, but their admixture makes them less digestible: the rice being insoluble in cold water and re-

quiring a longer time in baking than wheaten flour, and longer than the sepoy's give, or have been in the custom of giving, may account for their finding the attah of Bengal, so much more difficult of digestion, than the attah of their native Provinces.

In one mode I conceive a rice diet, when long continued, may affect the health of the native soldier. Being less nutritious and invigorating than wheat, his system becomes less capable of opposing the encroachments, or rallying from the attacks of disease, and convalescence becomes tardy and uncertain.

There is a circumstance worthy of remark, as bearing pointedly on the substitution of one kind of grain for the other. The 58th Regiment N. I., while at Jumnalpoore, (where it went from Sultanpore, Oude) to a man fed on rice; its cheapness being an object as they could procure upwards of a maund for the rupee. During the stay of the regiment at that station, as has already been mentioned, (and exhibited by the tables,) they enjoyed a degree of health, nearly equal to other regiments in Upper India, living on attah; and as great an exemption from casualties.

Another and more certain cause of the greater sickness of the troops in Bengal, is to be found in the abundance and cheapness of fruit and vegetables throughout the year. Here they can indulge in coconuts, plantains, pine apples, jack fruit, &c., some of which do not grow, and others, from their price, are without their reach, in the Upper Provinces. These eaten to excess, are productive of indigestion and bowel complaints. Occasionally they eat of these from

their low price, being the cheapest food they can make use of; and will not unfrequently, stuff themselves with whole jacks, and large bunches of plantains, till they silence the cravings of hunger, by extreme distention of their stomachs.

The sepoys from prejudice do not use the river water, on account of its being subject to the influence of the tide. They conceive that the filth and impurities daily thrown into it are brought back by the reflux tide; and erroneously conclude that it must be brackish during the flood, which it is not, and is indeed used by the villagers around. The water from the public tanks is in general use with the men; they usually have recourse to the tanks nearest to their respective lines. These depend upon the periodical rains for their supply, and receive it by the drainage of the lines; which carrying along with it leaves and other impurities, fills them with water, which continues dirty and muddy during the rains, and part of the cold season also.

During the rest of the year, by evaporation and expenditure, these reservoirs become very low, especially if the latter rains have been light. By subsidence, and freedom from disturbance, the water becomes clear and pure; and notwithstanding the men imagine it is not so wholesome as that of their own provinces, it has not any qualities detrimental to their health. To the water in use by the sepoys, I do not ascribe any deteriorating influence on their health. The river water, as I have said, they do not make use of, either for drinking or cooking purposes. The tank water

is used by all the corps during the whole period of their stay at Barrackpore, and certainly during the first and second year, without detriment to their health; and it accords with experience, that when this necessary article of daily consumption is prejudicial to health, it proves so in a very short time; its effects become soon obvious, by derangements of the digestive organs and bowels, and this remark is confirmed also by its sanatory powers in the remedial effects of mineral waters.

With more justice, a prejudicial effect on the health of the native troops, cantoned in the Lower Provinces, has been ascribed to the exuberant vegetation in and around their cantonments.

It will readily be admitted, that the numerous trees planted within the lines, afford a grateful shade from the intense heat during the day, and pleasant shelter from the heavy dews which fall during the night, in Bengal; but these benefits are dearly purchased, and more than counterbalanced, by their injurious effect during the rainy season.

By the exclusion of the sun's rays, and the powerful influence of winds, evaporation is completely prevented; as soon, therefore, as the soil has become saturated with moisture, after the setting in of the periodical rains, there is no further drying up; and, as the huts of the native soldiers are scarcely raised above the ground, the men live during three or four months in a mire or swamp; and if we add to this that the husks and kernels of fruit, which they are in the habit of constantly strewing about their lines, and the fallen

leaves from the surrounding trees, readily enter into decomposition, we clearly perceive that there is during a great part of the year, within their lines, a prolific source of malaria, the cause of the endemic diseases of Bengal, to which the men, by prolonged residence, become so subject.

There occurred at Barrackpore, in 1840, a circumstance apparently confirmatory of this view, of the prejudicial effect of trees in the lines of native corps.

On the arrival of the 25th Regiment, N. I., at Barrackpore, in 1840, there was a necessity for marking out new lines for this corps, there not being sufficient accommodation for them in the old ones. These were marked out in open fields, on the opposite side of the parade, where there were neither trees nor shrubs. This corps was more healthy than any other part of the force at Barrackpore, whose stay in Bengal had been contemporaneous, and were located in the old umbrageous lines.

Another subject necessary to be taken into consideration, as being influential on the health of troops, is the nature and extent of their duty.

The troops at Barrackpore are called on, in addition to the station and regimental duties, which they have to perform, in common with other corps of the native army, to garrison Fort William, and furnish guards for some of the public offices and buildings in Calcutta. This is a duty which must exert an unfavorable influence on the health of the men. Besides being on duty the whole month, without relief, they are in some situations particularly exposed to the sun and

weather, as at Government House. The sentries at Government House have little protection from the sun, the sentry-boxes intended for this purpose become so intolerably heated, that the men cannot remain in them, and prefer exposing themselves outside, where they can feel the wind, to being enclosed in these overheated boxes. The men on this duty are obliged to be dressed in cloth, and are not allowed to wear the Oil-skin cover on their caps; the former adding to the heat of a climate scarcely bearable, the latter from the brass ornaments becoming rapid conductors of the sun's rays*. The guard-house, set apart for the guard on duty at Government House, is reported to be exceedingly narrow, and insufferably close and oppressive, even to a native. There is another circumstance which exerts an unfavorable influence on the health of the men, and therefore deserves notice, though it may be irremediable. Every one acquainted with the habits of the natives, is aware what strict devotees they are at the shrine of cloacina. The men on the town duties have no midawn, or other convenience, than boats moored upon the river, to perform their daily devotions; their aversion to these aquatic excursions induces a course of irregularity at their daily shrine; which, being opposed to their former habits, must render them more prone to disease, and may add to

* Since the above was written, the humanity and consideration of the late Governor General, have substituted a light forage cap, with a white cover, for the heavy and cumbrous shako; and the sentries at Government House, are permitted to wear their light clothing while on duty.

the number of sick sent up from the monthly guards. With the number of regiments now at Barrackpore, the garrison and town duties do not bear heavy on the troops ; the tour of duty of each corps comes round every 3rd or 4th month. At present, however, the duties of the men when in Fort William, or in Calcutta, remain the same, whatever may be the number of regiments at Barrackpore, the men take their tour of duty as sentry, daily, for a month unrelieved.

The mode of distributing the duty is objectionable, in confining the duty to two regiments only at a time, in order to have the others effective for brigade exercise. The quota of troops furnished by each regiment, bears not severely upon a healthy corps, with its ranks efficient ; but, on one having many sick, or absentees, and convalescents, wanting to complete, the station and regimental guards bear heavily on the men left at Barrackpore : many of them do not sleep in their huts for many successive nights, and are scarcely able to bear this continual call upon them.

I annex a brief history of the mode in which disease attacks and proves so fatal to the native soldiery at Barrackpore.

The sepoy, in the first year of their residence at Barrackpore, are subject to occasional attacks of intermittent fever, on exposure either to the sun's rays or night dews ; these attacks are generally very easy of subjection ; during this period, an emetic or purgative, and a stay of a few days in hospital, are sufficient to effect their recovery, and they return to their lines free from fever : but predisposed, on less exposure and

even by a less exciting cause, to be attacked by fever again, and this susceptibility continues while they remain at the station.

These recurring seizures, making great inroads on the strength of their constitution, now less able to withstand them by a residence in a damp and moist climate, and by a change to a less nutritious and invigorating diet, leave them a prey to more severe attacks, or easy victims to new forms of disease, or to disease under less tractable and more fatal phases. As a consequence of these repeated attacks, we find the sepoys liable to a complication almost endemic, or peculiar to this part of the world, an enlargement of the spleen : which renders them more prone to feverish attacks, impairs the digestion, interrupts the ulterior process of assimilation, undermines the constitution, and terminates either rapidly, by inducing diarrhœa or dysenteric purging ; or more slowly, but not less fatally, by dropsy. Occasionally, though seldom, it proves fatal by rupture ; in which case death takes place suddenly, either at the commencement of the cold fit of ague, or by even the slightest exertion of the invalid walking, it may be from his own charpoy to that of his comrade. Diarrhœa is often the last stage of this fitful malady, it speedily proves fatal, to a constitution already broken down by the preceding forms of disease ; and during its continuance, scarcely averaging a fortnight, it proves entirely without the control of medicine. Should the looseness be checked during the day, it is only to return with increased violence during the night, or to terminate in a more

severe form of dysenteric purging. But diarrhœa, and dysentery, may be regarded likewise, as complications of the previous attacks of ague; and frequently supervene without the intermediate agency of diseased spleen: they often succeed to these it is true; but frequently the men are admitted into hospital with diarrhœa or dysentery, without either spleen or fever: and unable to account for the origin of their complaints. In the convalescents and young recruits they are often induced by repletion. On their return to the lines, they imagine that they will recover their strength and flesh in the ratio in which they eat; the consequence is, they overload their stomachs, indigestion occurs, the food is propelled into the bowels in a crude mass, and nature endeavours to relieve herself by exciting the intestines to increased action; and these, when once excited to this increased movement, cease not their unusual exertions, but in death. There being but a feeble constitution to act on, a change of condition, by the induction of mercurial influence in the system, so successful in Upper India, is of little effect, but prejudicial in Bengal; it only hastens the certain and already too speedy step of death. The dysenteric sepoy has now no strength left, and when he comes into hospital, during his third year's residence at Barrackpore, he comes in, alas! too surely to die.

II.—*The period of residence in Bengal necessary to produce disease, and the period necessary to restore the health of a regiment, which has been deteriorated by residence or service in the unhealthy climate of Bengal.*

It is admitted by all who have given their attention to this subject, that from the period a body of native troops, is brought down from a station in Upper India, to one in Bengal, there is a progressive increase of mortality, as well as of sickness, during their stay in the Lower Provinces ; but this gradual augmentation of the number of deaths, may not be very remarkable during the first, or even second year, of their residence in Bengal, as has been observed in regard to the sickness ; though the tables of casualties of the 3rd, 57th, and 58th corps of N. I. exhibit a progressive increase of mortality, from the first year these regiments were cantoned at Barrackpore. If the casualty returns, for the first two years of the service of a regiment in Bengal, were taken as a criterion of the insalubrity of the climate, they would give a very fallacious one.

The climate of Bengal is not very destructive during the first two years' residence of troops within it. While there are some regiments in whose ranks disease and death are committing great ravages, and that have completed two years and are in the third of their stay in Bengal, there are other corps that have been but one, or part of a second, that do not feel the destructive effect of its climate, and continue healthy ; some indeed have scarcely more men in

hospital than on an average they would have had in the Upper Provinces.

By a reference to the table of deaths it will be seen, that during the year 1838 the first year of the triennial period of the stay in Bengal of the 3rd and 58th Regiment N. I. the ratio of mortality, though higher than it was at the stations they had left, is trifling compared to that of the second year; and in the 57th, including the casual visitation of cholera at Benares in 1837, the total number of deaths is not so great in 1838, as at that station and in that year; but how much higher is the rate of mortality during their second year at Barrackpore? and if we add the experience of the third year's residence, what a fearful increase of mortality. In 1838, the percentage of deaths to strength of the 3rd N. I. was $2\frac{1}{4}$; in 1839 it rose as high as $4\frac{1}{7}$; and in 1840 it was 16 per cent.

The percentage of deaths to strength of the 57th N. I. in 1838, was as $1\frac{3}{5}$; in 1839 as high as $8\frac{1}{2}$; and in 1840 it equalled $16\frac{2}{3}$.

In 1838, the ratio of deaths to strength in the 58th regiment N. I. was $2\frac{1}{18}$ per cent.; in 1839 it was $6\frac{3}{8}$; and in 1840 it was $14\frac{1}{3}$.

A very superficial glance at these tables, leads to the conviction that the third year is pre-eminently the fatal year of the residence of native corps at Barrackpore, and that the sickness and mortality is in relation to the stay of the troops in Bengal.

As it is of the utmost importance to establish this fact, I have added numerical returns of the casualties of other regiments, the 12th and 15th, these two corps

did not remain three entire years at Barrackpore, the 12th was but two years and six months, so that we have but six months of the 3rd year to compare with twelve of the preceding year. But incomplete, as this table is, it appears there was as great a loss in the last half year of their stay, as in any of the preceding years, which gives a double rate of mortality for the 3rd year. The 15th Regiment N. I. remained ten months of their 3rd year, and experienced in that time a less loss than usual at Barrackpore. It lost in the twelve months of the 2nd year 58, in the last ten months of its stay 54; at this rate however the casualties would amount to 67 during the third year. The selection of these regiments has been made from among those that have been stationed at Barrackpore, with the view of establishing the fact that the increase of mortality is in relation to the length of residence of native troops in Bengal; and though the extent may be greater or less during some seasons than during others, it is shewn to be certain and progressive, as the 3rd year, of their service, was contemporaneous with the second, of the three regiments whose sickness and loss first attracted my attention. These returns shew that while those two corps were experiencing their greatest loss and sickness in the year 1838 and 1839, these three were comparatively healthy.

It has been urged that the year 1840, was a very unfavorable one on the health of native regiments stationed at Barrackpore, but that the great sickness and mortality which fell on these corps, is not alone at-

tributable to the influence of season or other adventitious circumstances, a conclusive proof is to be found, in the relative health and freedom from disease, of the other portion of the force cantoned at Barrackpore during this year.

The other four regiments had come from the Upper Provinces, were exposed to the same atmospheric vicissitudes, the same local influences, had made the like change in their diet, purchased their food (it might be) from the same bazar, drank of the same water, were subjected to similar discipline, underwent corresponding duties, were similarly constituted, and in every other respect were similarly circumstanced, but continued healthy and efficient, while the ranks of these three corps were daily thinned by disease and death. There was one point of coincidence among the healthy, and discrepancy between them and the suffering regiments; these were in the third year, those were in the first of their stay at Barrackpore.

It may therefore be regarded as an incontrovertible fact, that the third is the fatal year of a regiment's location in Bengal. Having demonstrated that the efficiency of a corps is almost entirely destroyed by a residence of three years in Bengal, I proceed to another subdivision of my subject, to prove that it requires an equal length of time to render a corps, whose health has been deteriorated by this prolonged period of duty in the southern Provinces, fit for active service.

The appearance of regiments on leaving Bengal, after having completed a three years' tour of duty, is

that of a moving mass of mere spectres, a very large proportion of the men have lost the sleek shining, smooth, coppery hue of health, and have become emaciated, pale, squalid, and undisciplined invalids ; relaxed discipline being the usual concomitant of great sickness. They drag their emaciated limbs from march to march with slow unmeasured tread, and even the return to their native provinces, fails to excite the quick step, or inspire the bouyant spirits on their upward march. This was painfully exemplified in the 57th regiment on their march from Barrackpore in 1840 ; this corps was reduced to a mere skeleton regiment ; 240 rank and file were all that followed the regimental colors out of the station, and a majority of these were sick and infirm men ; all had, in a greater or less degree, experienced in their persons, the deleterious effects of a prolonged residence in Bengal ; and the appearance of the corps was in strong contrast with that of the 8th Native Infantry, which had come from Bareilly, and was on its march to Barrackpore.

The casual meeting of these regiments, afforded an opportunity of comparing the different condition of the men composing them ; and the varied effects of climate on the health and appearance of the native soldier ; the hearty and noisy greeting of the 8th Native Infantry fell cheerless on the ears of the men of the 57th, who returned it feebly, and continued their march to Benares in slow and noiseless mood. Brigaded with other corps, the appearance of a regiment recently returned from the Lower Provinces,

is in striking contrast with those that have not been lately on service south of the Soane.

The individual appearance of the men in the ranks is also remarkable ; they look thin, sickly and diminutive ; their clothes and accoutrements fit them indifferently ; and the smart soldier-like bearing of the healthy sepoy is wanting.

The regimental hospital continues crowded, and the sick list is numerous, especially during the first twelve months after a return to the Upper Provinces, and offers an unfavorable comparison with the hospitals, and sick returns, of native regiments that have not lately been below Behar.

During the first year after their return from Bengal, the sepoys continue to suffer from a frequent recurrence of the endemic diseases they had experienced below, as fever, diarrhœa, dysentery and tumefied spleen ; these carry off numbers who had escaped from Bengal, but with constitutions so irremediably ruined, that no change of air or locality can benefit, and a mortality occurs scarcely less than during the third years' stay in Bengal, but gradually decreases during the next and succeeding years ; till all the sick and infirm men have been removed by death or transferred to the invalid establishment. A very large number of those sent home never rejoin, falling victims to the deleterious climate which they had left ; and of those who do return, many come back worse than they went, and only rejoin to swell the aggregate mortality of the hospital returns. So few seem to derive advantage by the indulgence granted, of visiting their

homes, that my belief of its beneficial effect has been much shaken. A few may recover completely, whose diseases are recent and slight; but those suffering from chronic diseases, such as enlargement of the spleen, or bowel complaints of long standing, either die on their way, or do not long survive their return to their native villages.

When once the native constitution has been injured by a lengthened residence in the damp and moist climate of Bengal, it recovers its original vigour very slowly, and often imperfectly, by a return to the dry invigorating air of Hindoostan; and only after a considerable period. It seems that the influence of the Bengal climate does not immediately cease on a removal to the Upper Provinces, but continues to exert its baneful ascendancy over the constitution of the native Soldier, as manifested in the great number of men who become subject to enlargement of the spleen, after their return to the Upper Provinces, even after the lapse of many months, and in localities free from paludal exhalations or endemic disease of any kind.

In the first year after the return of the 57th N. I. to Lucknow, many men who never had any perceptible tumefaction of the spleen, during their previous service in the Lower Provinces, became affected with splenic enlargements during the rains of 1841.

The three regiments, whose sickness and mortality have been so frequently referred to, were with great consideration, ordered to stations most congenial to the sick sepoy, Benares, Mirzapore and Lucknow.

The tables appended, formed from the annual re-

turns of casualties of the 3rd and 57th and 58th regiments, for the three years 1841, 1842 and 1843, since their removal from Bengal, exhibit a very considerable mortality; but a very marked reduction each successive year included in the table. The first year, 1841, shews a long list of deaths, not fewer than 111 in the 3rd N. I.; 130 in the 57th N. I.; and 84 in the 58th N. I.; the second year the deaths are fewer, in the first, 46; in the second corps, 45; and in the last named corps, 52; in the 3rd year the numbers are respectively, as 13 and 16 and 37. In this year the ratio of deaths is little above the average mortality in the Upper Provinces; we may justly infer that in the 4th year, (the present one,) it will not exceed it. We are therefore justified in drawing the conclusion, that it requires a period of three years' residence, and recruiting in their native provinces, to render a regiment of sepoy's effective and fit, for active service, after a triennial tour of duty in Bengal.

Of the large force in the field during the last cold season, of the three regiments whose medical history forms so large a part of this paper, the 58th regiment was the only one employed, but three years had elapsed since it had quitted the scene of its sufferings and losses.

Another subject of infinite importance to the interests of Government, besides the great mortality of its soldiers, dependent on a prolonged service in Bengal, is the increased number of men whose debilitated and worn out constitution renders it neces-

sary to remove them from the effective to the non-effective establishment, and which creates a serious drain on the finances of the state.

Some idea of the increased number, who must have been transferred in a series of years, to the invalid establishment, under the former system of relief, may be formed from the returns of the number invalided from the 3rd Regiment N. I., during three years, subsequent to its removal from Bengal. There were removed from the ranks of the 3rd Regiment N. I. to the non-effective establishment, in 1841, 14; in 1842, 41; and in 1843, 20. Total, in three years, 75.

In order to show the relative proportion, I add the number of men invalided from two corps, that had not lately been in Bengal, and whose returns were obligingly furnished by the commanding officers and adjutants.

In a like series of years, from the 31st Regiment N. I., there were added to the invalid establishment, in 1840, 1841 and 1842, 39 men. In the same years, the accession to the non-effective establishment from the ranks of the 40th Regiment N. I., was 22. It is undeniable, that under this view, the adoption of a biennial relief, is one which, while consonant to the calls of humanity and justice, is dictated by sound policy and adapted to diminish, very materially, the claims upon the invalid establishment; but on this subject I shall have more to say in another place.

The process by which the condition of native regiments which have been deteriorated by service in Bengal, become renovated, is first, by the general

health of the battalion gradually, and slowly improving in the course of two and three years; secondly, by many of the sick and weakly men dropping off by dysentery, diarrhœa, or the sequelæ of intermitten't fever, dropsy, debility and tumefied spleen; and thirdly, by a large number of infirm and ineffective men being removed to the non-effective establishment. The places of those transferred, and of the dead, being constantly supplied by healthy and young recruits, these form no inconsiderable part of a regiment, and as it requires from ten to twelve months to commute the raw recruit into the well-drilled and effective soldier; it follows, that until this portion of a corps has been drilled and disciplined, the regiment cannot be considered as fit for service in the field. And as there is a continual succession of vacancies occurring, caused both by death and transfer to the invalid establishment, which are filled up by young recruits, it is further obvious, that no corps can attain to its former degree of discipline and efficiency, till the cessation of this unusual succession of casualties, or till the expiration of the third year.

I propose to take a survey of the changes which have been carried into effect since the delivery of my Report, in 1840, and to bring under consideration what are the results of these improvements.

Of these, the first in importance is the substitution of a biennial for a triennial relief. To the adoption of this measure, I look forward for a considerable reduction in the sickness and mortality, hitherto regarded as irremediable, and inseparable from service in Bengal.

Three years have elapsed since the resolution of the Governor General in Council has been acted on, and we ought by this time to be able to test the efficacy of this measure by its results.

With this view, I have submitted to examination the numerical abstracts of the annual returns of the Superintending Surgeon of the Presidency Division to the Medical Board for the years 1840, 41, 42 and 43. By comparing the returns of the last three years, with that of 1840, the year prior to the adoption of the biennial relief, we shall be enabled to form a judgment of its success as a prophylactic measure.

In 1840, the average strength of the force stationed at Barrackpore was 5441, the number of sick 5842, and of deaths 293, giving a ratio of sick to strength 108.5, and of deaths to strength as 5.3. In 1841, the average strength being 5834, the sick 6518, the deaths 244. The ratio of sick to effective men 112.2, and the ratio of deaths to strength as 4.5. In 1842, there were 4629 effective men, on an annual average, at Barrackpore, the admissions into hospital were 6478, and the ratio of sick as 140.1; there died, of this force, 151, giving a ratio of 3.3. In 1843, the average strength of the troops cantoned at Barrackpore, was 5235, and the number of sick 5354, and of deaths 120, giving respectively ratios of sick and of dead as 103 and 2.3. Though the measure of a biennial relief had reference chiefly to the native troops stationed at Barrackpore, the substitution has been made in the relief of troops at other stations in Bengal, especially

Dacca and Chittagong, whose character for salubrity are not much higher than that of Barrackpore.

By an examination of these returns from Barrackpore, it appears there has been a decreasing rate of mortality, each successive year, since the substitution of the shorter period of service.

In 1840, the ratio of death to strength was as high as 5.3. In 1841, it was as 4.5. In 1842, it was only 3.3. In 1843, it was 2.3.

During these years, there has been a progressive reduction of 1 per cent. on the annual mortality, which in a large body of troops amounts to no inconsiderable number. In 1840, the total casualties were 293; in 1841, it was only 243; the difference being justly referable to the adoption of this salutary measure. The climate is the same, the locality unchanged, the discipline not dissimilar, the duty identical, but there is this discrepancy in the general body of the sepoy regiments, none of them have served more than two years in Bengal; none of the corps included in the tabular comparisons have been three years at Barrackpore; and to the shorter detention of troops in the uncongenial climate of Bengal, must be attributed; without doubt, the lesser mortality.

Formerly there was no guard-room at the Mint, the men were lodged in tents throughout the year, which gave very inadequate protection from the sun or rain. At this post there were always a great many men taken sick. There is now a substantial and commodious building, with cook-rooms, for the use of the men on guard.

It is only surprising there was not a guard-house before, as the mint was at all times likely to require a guard and to be a permanent post; and considering that the cost of building one could not have been great, and would have effected a saving to Government by the withdrawal of the tents, one or two sets of which were annually destroyed. It has been stated that a similar measure has taken place at Dacca, attended with a great improvement in the health of the men stationed there, formerly the quarter-guard-room at that station was small, and insufficient for the number of the guard, the consequence was that many of the men were constrained to sleep during the night in the open air, exposed to the heavy dews, fogs and rain that prevail in Bengal; and few of the natives from the Upper Provinces can do so with impunity. From this post there were numerous admissions into hospital; since the erection of a large and commodious guard-room it is reported there are much fewer men taken ill at the quarter-guard of the regiment on duty at Dacca.

The conveyance of the Reserve guard to and from the Presidency by Steam is another arrangement subsidiary to the preservation of the health of the native troops cantoned at Barrackpore. In lieu of being two days on the march, and halting the intermediate night at Cox's bungalow, or the pukka-lines built half way in the midst of rice fields, from which, during rainy and the commencement of the cold seasons, paludal exhalations arise, inducing intermittent and remittent fevers, where many men first respired the

pestilential air which in due time shewed itself in febrile paroxysms. Indeed, I knew the wife of an officer who asserted, that she caught her fatal illness (a severe quotidian fever) at this place. The men are now conveyed to and from Barrackpore in less than two hours, without inconvenience or unnecessary exposure, at all seasons.

Notwithstanding these measures which have lately been taken for the prevention of sickness and mortality of the troops in Bengal, there are others yet desirable.

The adulteration of attah is an evil arising from the avarice of both buyer and vender, the thrifty sepoy is not satisfied with the smaller quantity of good attah which the native merchant can afford to sell him, and the buneeah, in order to meet the wishes of his customer and secure larger profits, mixes his grains. This evil is beyond the reach of municipal or military regulations, it will be remedied when the purchaser prefers paying a remunerating price for a moderate quantity of good, to getting a larger quantity of adulterated flour for his money. But there are other evils, not equally irremediable.

It has been shewn that a great part of the mortality falls upon the recruits, or young Sepoys, from and under 20 to 30 years of age, and one to three years service. Humanity and state policy dictate that measures be taken to prevent this class of men being exposed to a climate so fatal to them, and brought down to the Lower Provinces, before they are fitted, by age and length of service to bear the change

of life, change of food, and the fatigue of drills, all of which predispose them to sickness.

Recruiting depôts for regiments on service in Bengal, ought to be permanently established in the Upper Provinces, and the raw levies ought there to be taught their duty and rendered efficient soldiers, ready to fill up the thinned ranks of their regiments on their return from Bengal. This measure would not entail any very great additional expense on the state, beyond the mere pay of the commissioned and non-commissioned officers, attached to the depôts, and ought not to weigh a feather in the scale when brought to balance the higher considerations of humanity and justice. At present, with the object of augmenting the army, temporary depôts have been established, for recruiting the regiments now in Bengal, at Allahabad, Juanpore, &c. Let these be made permanent for all corps serving below Rajmahal, and to the eastward.

It has been found expedient to institute similar establishments for corps serving in Scinde. There is only a less occasion for this measure for those serving in Bengal, by the substitution of a biennial for a triennial relief.

As more particularly applicable to corps serving at Barrackpore, there is another measure of much importance, and which would be highly advantageous to the general health of the men, I allude to a different arrangement in appointing the peculiar duties the troops at Barrackpore are called on to perform. The severity of the town and fort duties on the

Sepoys has often struck official men, and been brought to the notice of government, and measures of relief proposed and rejected.

There are generally six corps at this station, from each of these a quota of troops is taken to make up the number of men required for these duties, who are kept on duty a whole month in the Presidency, instead of being relieved weekly as other station guards are elsewhere, and return to their lines when they are refreshed by a night's rest from guard-mounting.

A better distribution of the duty would be the locating two corps of this force in Calcutta or the suburbs, for six or twelve months, when they could be relieved by other two regiments from Barrackpore, this would enable them to give weekly guards to the several posts at the Presidency, and obviate the necessity of a monthly relief from Barrackpore or details from several corps. This is not a new proposal: During the governorship of Lord William Bentick, the building of lines, for the accommodation of two corps of Native Infantry at Ballygunge, was proposed and strongly urged, but this efficient measure was objected to by the Government of that day. It is hoped, now that a different spirit presides over the councils of the Supreme Government, and the comfort and welfare of the native soldier is made an object of especial regard and attention, that this or some equally effective measure will be carried into effect to remedy this evil.

Table showing the ratio of Sick to Strength of the 3rd Regiment N. I. for the years 1835, 36, 37, 38, 39 and 40.

	Station.	Years.	Strength of the Regiment.	Sick.	Percentage of Sick to Strength.	Remarks.
3rd Regiment N. I.	Mynpoorie, . . }	1835	759	338	41 $\frac{1}{2}$	Arrived at Barrackpore 29th Dec. 1837.
		1836	749	329	43 $\frac{4}{5}$	
		1837	751	396	52 $\frac{4}{5}$	
	Barrackpore, }	1838	753	482	61 $\frac{1}{2}$	Left on the 27th Oct. 1840.
		1839	926	868	93 $\frac{5}{8}$	
		1840	918	597	61 $\frac{3}{8}$	
		including 10 months to the end of October.			.	

Table showing the ratio of Sick to Strength of the 57th Regiment N. I. for the years 1835, 36, 37, 38, 39 and 40.

	Station.	Years.	Strength of the Regiment.	Sick.	Sick per cent. to Strength.	Remarks.
57th Regiment N. I.	Benares, . . . }	1835	752	348	46 $\frac{2}{3}$	Arrived at Barrackpore 29th January. 1838.
		1836	748	335	44 $\frac{3}{8}$	
		1837	749	403	53 $\frac{3}{8}$	
	Barrackpore, }	1838	747	466	62 $\frac{1}{2}$	Left on the 15th Dec. 1840.
		1839	914	882	96 $\frac{1}{2}$	
		1840	916	1059	115 $\frac{6}{11}$	
		including 11 months to the end of Nov. 1840.				

Table showing the ratio of Sick to Strength of the 58th Regiment N. I. for the years 1835, 36, 37, 38, 39 and 40.

	Station.	Years.	Strength of the Regiment.	Sick.	Per cent. of Sick to Strength.	Remarks.
58th Regiment N. I.	Jamaulpore, ..	1835	752	393	52 $\frac{3}{5}$	Arrived at Barrackpore 9th March, 1838.
		1836	752	502	67	
		1837	743	409	55 $\frac{1}{4}$	
	Barrackpore, ..	1838	928	648	70 $\frac{1}{2}$	Left on the 13th Sept. 1840.
		1839	943	913	97 $\frac{1}{8}$	
		1840	887	552	62	
		including 9 months to the end of Sept.				

Table shewing the Ages of the Men who have died in the Hospitals of the 3rd, 57th, and 58th Regiment N. I. from 1st January, 1839, to 30th April, 1840, inclusive.

Corps.	Caste.	Under 20.	Between 20 and 30.	Between 30 and 40.	Between 40 and 50.	Between 50 and 60.	Total of each Caste.
3rd Regt. N. I.	Mussulmans,	1	1	2	0	1	5
	Hindoos,	3	21	18	12	4	58
	Total, ..	4	22	20	12	5	63
57th Regt. N. I.	Mussulmans,	2	7	3	0	0	12
	Hindoos,	13	43	26	11	2	95
	Total, ..	15	50	29	11	2	107
58th Regt. N. I.	Mussulmans,	0	5	2	0	1	8
	Hindoos,	2	36	17	2	6	63
	Total, ..	2	41	19	2	7	71

Table showing the ratio of Deaths to Strength of the 3rd Regiment N. I. for the years 1835, 36, 37, 38, 39 and 40.

	Station.	Years.	Strength of the Regiment.	Deaths.	Percentage of deaths to Strength.	Remarks.
3rd Regiment N. I.	Mynpoorie, ..	1835	759	12	$1\frac{3}{4}$	Arrived at Barrackpore on the 29th Dec. 1837.
		1836	749	9	$1\frac{1}{4}$	
		1837	751	5	$0\frac{2}{3}$	
	Barrackpore,	1838	753	17	$2\frac{1}{4}$	Marched from Barrackpore 27th Oct., 1840; arrived at Mirzapore 5th Jan. 1841.
		1839	926	42	$4\frac{1}{2}$	
		1840	918	144	$15\frac{1}{2}$	

Table showing the ratio of Deaths to Strength of the 57th Regiment N. I., for the years 1835, 36, 37, 38, 39 and 1840.

	Stations.	Years.	Strength of the Regiment.	Deaths.	Percentage Deaths to Strength.	Remarks.
57th Regiment N. I.	Benares,	1835	752	12	$1\frac{3}{4}$	Arrived at Barrackpore on the 29th Jan. 1838.
		1836	748	8	$1\frac{1}{4}$	
		1837	749	15	2	
	Barrackpore,	1838	747	12	$1\frac{3}{4}$	Marched from Barrackpore on the 15th Dec. 1840; arrived at Lucknow on 4th Feb. 1841.
		1839	914	78	$8\frac{1}{2}$	
		1840	916	150	$16\frac{4}{11}$	

Table shewing the ratio of Deaths to Strength of the 58th Regiment N. I. for the years 1835, 36, 37, 38, 39 and 1840.

	Stations.	Year.	Strength of the Regiment.	Deaths.	Percentage of Deaths to Strength.	Remarks.
58th Regiment N. I.	Jumaulpore, ..	1835	752	8	$1\frac{1}{3}$	The 58th Regt. arrived at Barrackpore 9th March 1838; left on 13th Sept. 1840; arrived at Benares in Nov. 1840.
		1836	752	11	$1\frac{1}{2}$	
		1837	743	5	$\frac{2}{3}$	
	Barrackpore,	1838	928	19	$2\frac{1}{2}$	
		1839	943	60	$6\frac{2}{3}$	
		1840	900	129	$14\frac{1}{3}$	

Numerical Return of Deaths in the 12th and 15th Regiments N. I. in the years 1837, 1838 and 1839, while stationed at Barrackpore.

15th Regt. N. I.	{	From 1st January to 31st Dec. 1837.	22
		Ditto ——— Ditto — 1838.	24
		Ditto ——— 31st July 1839.	22
		Total.	68
12th Regt. N. I.	{	From 1st January to 31st Dec. 1837.	10
		Ditto ——— Ditto — 1838.	50
		Ditto ——— Ditto — 1839.	47
		Total.	107

Table showing the number of Casualties in the 3rd, 57th, and 58th Regiments N. I. in the three years succeeding their departure from Bengal, in the years 1841, 1842 and 1843.

Corps.	3rd Regiment N. I.		57th Regiment N. I.		58th Regiment N. I.	
Years.	Died.	Invalided.	Died.	Invalided.	Died.	Invalided.
1841	111	14	130	5	84	18
1842	46	41	45	9	52	9
1843	13	20	16	14	37	11
Total	170	75	191	28	173	38

ARABIC TERMS
OF
MATERIA MEDICA.

BY
DR. ALOYS SPRENGER, B. M. S.

READ JULY 6, 1844.

Our ignorance of the terms of Arabic Materia Medica, has, from the middle ages up to the present day, been the greatest obstacle which prevented us from penetrating deeply, into the medical knowledge of the Mohammedan nations. For on reading an Arabic medical writer you may perhaps understand the description of the symptoms of diseases, but you will never be able to make out the treatment without knowing these terms.

The importance of the terms of the Materia Medica of the Arabs, is therefore determined by the value of their medicine.

I know most of my colleagues, look down upon Arabic medicine, but I do think it would be better, to look first, into it. I am sure that there is no man in Asia, nor in Europe, neither a native, nor

a white man, who has a sufficiently profound knowledge of Arabic medicine, to justify him in passing any opinion at all upon it; and although I cannot boast myself of knowing more about it than other people, I have yet found several instances of priority in discovery, and in accuracy of observation, in several important points, which I had not expected to find. And as far as I could compare the practice of modern and ancient times, I am induced to think, that the present state of medical practice, is not much superior to that of former ages. And that they cured as many patients, and killed less, than we do, notwithstanding our superiority in anatomy and other preparatory studies.

Much that was in those times familiarly known and acted upon, would greatly improve our own knowledge and practice, even at the present day. I feel sure, therefore, that any attempt upon my part to revive such knowledge, and add to the stock of oriental medical science, which has been accumulating under the auspices of this Society, will be received with favorable consideration.

The Arabs have cultivated no other field of medicine with greater success than *Materia Medica*. We find as early as the end of the first century of the Hijra, that the Government as well as the nation had directed their attention to the study of medicine. The Omayyide Khalif, 'Omar Ben 'Abdul'azyz, gave orders that the medical books of his library should be transcribed, and made public, on account of their general utility. It is impossible to conjecture, with

any degree of certainty, whose works the books in question may have been. There lived, indeed, some Arabic physicians during the age of Mohammed, like al Harith Ben Keldah, Nazr Ben al Harith, &c., but they are not known to have been authors. Perhaps they were written in the school of Harrán, or by some well informed Híríans who had studied at Jondisabûr. We cannot well suppose, that the few compendiums on the art of healing of Maserjewayh, Theodocos, and Theodun, are alone intended, who lived and wrote under the Omayyide dynasty.

The first Arabic work on Materia Medica that is known to exist, was written about the year 100 of the Hijrah, (A. D. 718) in Damascus, which was then the capital of the Khālif's, by Ahmed Ibn Ibrahim, under the title "Tractatus de herbis et plantis ad conficienda remedia idoneis." A manuscript of this book is at Florence (compare Steph. Ev. Assemanus Bibl., Med. Cod. MSS. Orient. Catalog; Florentiæ, 1742, No. 256.) Next in age is the *liber de plantis* of Ibn Aby Zaher, which was written about the year 126 of the Hijrah, and is to be found in the library at Paris (anc. fonds, 968.)

About the same time the Alchemy of the Arabs came to perfection through the labours of Geber (Jábir Ibn Hajján). The Latin translation, of several works of Geber, has repeatedly been printed; but we must wait until our Arabic studies have made a much greater progress than at present, before we are able to subject the chemical writers of the Arabs, to a critical examination. There is indeed, to my knowledge,

not one orientalist in Europe, who could attempt such a task ; and the translators of the middle ages neither understood their authors, nor were they anxious to translate more than the marvellous portion of their books ; hence Roger Bacon says of the Latin translation of Arabic authors on chemistry “ bene loquitur Arabs ; sed male vertit Latinus.”

During the beginning of the 'Abbaside dynasty, Dioscorides was translated into Arabic by Stephanus the Younger ; and this book together with Galen's books on the same subject, continued from that time to be considered as the text books of Arabic Materia Medica. I had the advantage of examining this translation, and I found it inferior to the general run of Arabic translations from the Greek. I think it has done more harm than good. The Greek names of drugs are for the most part merely transcribed into Arabic characters, and only in rare instances the corresponding Arabic name is added. Thus it became mostly impossible to identify these names, which became more corrupted as often as they were transcribed. During the succeeding three centuries however, a number (more than two hundred) of Arabic authors on Materia Medica, enriched this science with their observations, they corrected the errors of their predecessors, identified foreign names, fixed the technical language, and imported a great number of drugs from India, Persia and other eastern countries ; with the nature and use of which the Greeks had been unacquainted. The translation of Sanscrit books into Arabic under Mamun, and the practice of Indian physicians in the Hospitals

at Bagdad, have no doubt greatly contributed to the advancement of the *Materia Medica* of the Arabs.* And thus it happened that the Arabs became so much superior in the art of healing to their Greek prototypes, that Actuarius and other Greek physicians of his age thought that they could not render a greater service to the profession than by translating Arabic writers into Greek.

In the seventh century of the Hijrah, when Arabic literature was in its last stage, there came a man who compiled all the information he could find in the labours of his predecessors; and who travelled through the greater part of the Mohammedan dominions, in order to become acquainted with the drugs, and their synonyms. This man was Ibn Baytar (Abdullah Ibn Ahmed.) His book is considered in Asia, as well as in Europe, the most complete Arabic work on *Materia Medica*. It is, indeed, a mine of useful information. It will appear from the list of drugs which are annexed to this paper, that many hundreds of drugs are enumerated in Ibn Baytar's book, which are indigenous in India, and which might be usefully introduced into our *Materia Medica*. Even if we should have equivalent medicines in our *Materia Medica*, the native drug could in most instances be procured cheaper; which would be a great object, particularly for the natives, who if not made acquainted by us with the sciences of their forefathers will never of themselves revive them.

* Serapion the Younger quotes Xuchar Indus, as one of the authorities of his *Materia Medica*.

Some of these articles have indeed at length been admitted into our practice, such as the bark of the root of the pomegranate against tape-worm, and the Tiryák alfarúk تریاق الفاروق lately used with success against Beri-beri. The latter, though a Greek medicine,* was first introduced by the Arabs in the middle ages into Europe where it has been preserved by the French and other nations of the Continent in their pharmacopœias up to this day. The history of the introduction of these and similar specifics into our practice is not very creditable to us. Though the use of the bark of the root of the pomegranate, is described in every Arabic hand-book of medicine, yet it would not have come to our knowledge if the arcanum, had not been sold by a *fakeer*, to a gentleman of the Madras Presidency. In like manner, the Medical Officers of the same Presidency would probably never have known of the use of the Theriac, against beri-beri, and perhaps not even of the existence of this medicine, if they had not seen it used by the Natives. Now should we go to a chiffonier to study the French practice of medicine, or read the principal French authors? How much more then, is it necessary to study from books, the sciences of a nation which has long since ceased to flourish, and in which all oral instruction has been lost.

Ibn Baytar's work has long been esteemed by Europeans, and the first translation I know of, was made by Postellus (died 1581), but his translation

* It is the Theriaca Andromachi Majoris, which has been fully described by Galea in his book "ad Pisonem."

has never been published. Next Reiske is said to have had it in view to publish a translation, which I suppose however has never been finished, certainly nothing of it has ever been printed. Dr. Dietz, one of the most learned men of our profession, published an abridged translation of the first chapter in his *Analecta Medica*, but he was prevented by a premature death from finishing his task, and so the work of Ibn Baytar was taken up and translated into German by Dr. Sontheimer (Stuttgart, 1840-42, two volumes in Royal 8vo.) and it is from this translation, that I borrow the list of Arabic names of Materia Medica which I have the honour to communicate to the Society.

In this country government and learned individuals have made attempts to clear up the Materia Medica of the natives; the contributions of Drs. Playfair and Ainslie are no doubt very valuable. Only as they did not go to the fountain head, but contented themselves with second-hand information, they are insufficient. Their books have however been very useful, and therefore we owe to these authors our respect and gratitude. As the German translation of Ibn Baytar is inaccessible to most Indian readers, and as it is very incorrectly made, it would be very desirable that a book be written, of which a complete and accurate English translation of Ibn Baytar should form the basis, and in which extracts from all Arabic and Persian authors on Materia Medica whose works can be procured should be embodied. The Latin translations of Arabic works on Materia Medica which

were made during the middle ages, and of which I give a list in this paper, would of course not be neglected in such a work. Every man who loves science must see the importance of a work that embodies the experience on *Materia Medica* of five thousand years. But, besides the practical interest, it would be historically important: Is not the knowledge which the Greeks had of the use of myrrh a proof that they must have been in some connexion with the countries where it grows? The same remark applies to other medicines.

To enter on the usefulness of Arabic *Materia Medica*, would involve us in a discussion on the merits of Arabic medicine, as we have said above. Such a task would be long, difficult, and above all fruitless. The majority of the members of our profession are now much more defective in all literary education, than they have been at any time before; and although the science of medicine is advancing, the practice has sunk, in a great measure, into a disgraceful empirism. And just as the poor will sometimes pretend to hate wealth, the ugly to despise beauty, and the little to look *down* upon the tall, so the the unlearned and ignorant will proscribe literary attainments as unpractical; and some medical authors have so far receded towards barbarism as, to profess never to have read any other book than the book of nature. The first part of the sentence is probably true, but do not such geniuses know that six thousand years have been engaged in decyphering the Hieroglyphics of this book, and as Schiller says, "None has as yet raised the veil." Medicine is

a science of experience, and therefore to have the observations of centuries, and yet to think so highly of one's own premature post mortem examinations, as not to look at what others have done, is not right as respects others—nor wise as respects themselves.

The complaint that the medicine of the ancients is more neglected than it ought to be is not new. Mr. Bernard, one of the most learned men who ever came from the University of Oxford, said more than a century ago :

“ If we enquire, into the improvements which have been made by the moderns in surgery, we shall be forced to confess, that we have so little reason to value ourselves beyond the ancients, or to be tempted to condemn them, as the fashion is among those who know little, and have read nothing, that we cannot give stronger or more convincing proofs of our own ignorance, as well as our pride. I do not pretend that the moderns have not at all contributed towards the improvement of Surgery ; that were both absurd and injurious, and would argue as much folly as that which I am reproaching ; but that which I am contesting for, is, that it consists rather in refining and dressing up the inventions of the ancients, and setting them in a better light, than in adding many important ones of our own. Whether it be, that the art of healing external hurts being principally the subject of our senses, was earlier studied, and therefore capable of being sooner brought to a greater degree of perfection, than the other branch of Medicine ; or, that the majority of mere professors having been, for

some ages illiterate and empirical, it hath not been advanced and cultivated so as it might have been, had they been better qualified than they generally were, and do yet for the greatest part continue to be; for a testimony of which, that exceeding paucity of good writers, which occur in surgery, when compared with those in most of the other learned arts and sciences, is, in my opinion, sufficient; and yet, were they fewer, 'twould, in the judgement of these *Scioli*, be no great detriment to the art. For the folly of which assertion, the best excuse that can be made, seems to be, that because some methods of proceeding both in physic and surgery, which are incommunicable, and to which every man must be directed by his own judgement, and natural sagacity, not being to be found in these authors, whom these opinionated practitioners have had the luck to consult, they are led immediately to despise all reading, as useless and uninstrucive; especially that of the ancients, who do not generally, I confess, write to novitiates and fools, or to those who will be always such.

“But whoever hath been conversant in their writings, and hath the opportunity and capacity of comparing and judging from his own experience, will readily confess, that one thing, which does not a little recommend the reading of them beyond most of the moderns, is, that they are more accurate in describing the *Pathognomonics*, and more just and nice in distinguishing the species of tumors and ulcers, than our more refined moderns are.

“If this age hath par'd away any rude and super-

fluous methods of practice, as it must be confess'd they have, it cannot be demonstrated that they were all derived from the ancients, but were in a great measure introduced by ignorant and barbarous professors of a much later date.

“There is no question, but that the principal improvements, which have these latter ages been made in Surgery, are owing chiefly to the discoveries, which have been made in *Anatomy*, by which we are better enabled to solve many of those *Phænomena* which were before inexplicable, or explain'd amiss; the most important part, in the mean while (I mean the Art of Healing, to which all the others ought to be subservient), remaining very little better than the ancients left it.

“As an uncontestable proof of what I say, I appeal to all those bodies of surgery, which have been hitherto published, by the most learned and celebrated of the moderns, being all manifestly transcripts from one another, and the best of them from the ancients. But this may, indeed, be said in defence of the moderns in this particular, that even transcribing is not their invention, though it be their practice; for *Ætius* and *Ægineta* have borrowed not a little of what they have, from *Galen*; and *Marcellus Empiricus* more grossly from *Scribonius Largus*, without so much as remembering his name among the rest of those authors, to whom he was less beholden.

“But how many operations are there now in use, which were unknown to the ancients? I fear, that upon a due enquiry, there would be more useful ones

found to be omitted or discontinued, than to have been invented by us."

The observation of Bernard that the ancients have not written for fools is not only witty but wise. The reason is the ancients relied too much on authority. Thus an author on therapeutics would write down every remedy ever mentioned by any author, and that he might have ever heard of; and he would leave it to the reader to discern between what is useful and what is not so. His reader must therefore be a judicious man; neither a boy nor a fool could profitably read him.

There is no want of Latin translations of Arabic authors on *Materia Medica*, but we ungrateful children neglect the benefits of our parents before we ourselves are come to maturity, and so it will not be amiss, if I recapitulate some of those labours which were the beginning of our Medical knowledge in Europe.

The first work written in Latin on *Materia Medica*, after the scanty information contained in Pliny, is by Constantine a native of Africa, who came about A. D. 1050 to Italy. His native tongue was Arabic, and he had studied medicine and philosophy in Egypt, probably under Ishak Ben Solayman, some of whose works he has translated into Latin, or at least under Ishak's pupils. Constantine was the founder of the Medical school of Salerno, which was for a long time the only, and continued during the whole of the middle ages to be the best, school of medicine. This school is known to the English reader through the *Consilium Salernitanum ad Anglorum regem*.

Constantinus' work, *De Simplicibus*, has almost entirely been taken from the book of Ishak on the same subject, so that it may be called a translation. But, Constantine was a man who understood what he translated, and was therefore able to express his ideas, or rather the sense of the original, in clear Latin words, whereas the subsequent translators, were in most instances too ignorant to find equivalents for the Arabic technical terms.

Constantinus was a contemporary of Avicenna, but as far as my recollection goes of Constantinus' works (I do not possess them), he does not quote him. Considering the importance of the labours of Constantinus, which continued to be the best Medical works in Latin up to the sixteenth century, it will not be occupying more space than is a just tribute to his services if I insert below the titles of his works.*

* I follow in the enumeration of Constantinus' works the account of Gesner (*Biblioth. Univers. Zurich*, 1545, fol.) and Linden de Script. medicis, Norimb. 1686, 4to.; and Spachius *Nomenclator Script. medicorum. Franc.* 1591.) These three authors seem only to have known the edition of 1536 (in two vols. fol.) of Constantinus' works. They enumerate 1. *De morborum cognitione et curatione libri, a capite usque ad pedes.* The seventh book treats particularly on fevers and on the treatment of abscesses, and on surgical diseases. 2. *Liber aureus, a compendium of the preceding.* 3. *De urinis.* 4. *De stomachi affectionibus*, dedicated to the Archbishop of Salerno. 5. *De victus ratione variorum morborum.* 6. *De melancholia.* 7. *De coitu.* 8. *De animæ et spiritus discrimine.* 9. *De incantationibus*, this book, he professes, is of Indian origin, which, considering that so many translations of Sanscrit works were made into Arabic, is very likely. 10. *De passionibus mulierum et matricis.* 11. *De chirurgia.* 12. *De simplicibus*

After this beginning had been made, every celebrated Arabic book on Medicine, Philosophy, and Mathematics was translated into Latin almost immediately after it had been written in Arabic. Thus, in the eleventh century, a Latin physician published an abridged translation of the great work (*Liber regalis*) of 'Ali Ibn 'Abbás, who died in A. D. 994, and in 1127 a complete Latin translation was made of the same book at Antioch by Stephanus. This translation has been printed at Ven. 1492, and Leiden, 1523. The second book of the practical part of the work of 'Ali Ibn 'Abbás contains a *Materia Medica* which comprises five hundred and ninety-one simple medicines in systematical order.

The works of 'Ali Ibn 'Abbás, in the original Arabic, are of the best medical works ever written, nevertheless the translation cannot have been very useful, for it abounds in Arabic expressions. This is particularly the case in *Materia Medica*, for, in almost all instances, the Arabic names of drugs are preserved, thus sulphur, is called *quebrit*; iron, *tubelaris*; *sal ammoniacum*, *nudasarum*, &c.

The most diligent translator from the Arabic into Latin was Gerhardus of Cremona, who died in A. D. 1187. He spent the greatest part of his life at Toledo, and the works which he translated would amount (if collected), to about twenty volumes in folio. The books on *Materia Medica*, of which he gave a Latin

medicamentis. 13. *De Natura humana*. 14. *De elephantiasi*. 15. *De remediis ex animalibus*. Besides he translated a number of works from the Arabic.

translation are: 1. The Canon of Avicenna (who died in A. D. 1037.) The second book of the Canon contains the simple medicines. There are many reasons to believe that Avicenna had been translated before Gerhardus, but the more ancient translations seem to be lost. The *Materia Medica* of Avicenna comprizes 758 simple medicines, in alphabetical order, and it must be allowed that the translation of Gerhardus in this part of the work is infinitely superior to Stephanus' version of 'Ali Ibn 'Abbás. Gerhardus knows the corresponding Latin names of almost all simple medicines. He adds, however, constantly the Arabic name to the Latin, which was probably necessary at those times, because a great number of simple medicines came from the east to Europe.

2. The *Antidotarium* of Rasis, who died in A. D. 923.

3. The *Breviarium* of Joannes Mesue, or more correctly Yuhanna Ibn Masawayh, who died in A. D. 857. In the edition of Mesue of 1562, there are two translations of this author found, one is anonymous, and is called the *Versio Antiqua*, and the other is ascribed to J. Sylvius. It appears from two MSS. of the Library of Paris, (MSS. Latins, N. 6893, 6894) of the fourteenth century, that the *Versio Antiqua* was made by Gerhardus; this fact is not stated in the printed editions. The catalogue of simple medicines of Mesue is short, but his formulas are very numerous, and have been in use up to the seventeenth century. I have a *Pharmacopœa* of Augsburg of the year 1597, in which more than a hundred officinal formulas of Mesue are contained.

4. *Liber Albengnefit Philosophi de virtutibus medicinarum et Ciborum*, translatus a Magistro Gerhardo Cremonensi de Arabico in Latinum, Strassburg, 1531 fol.

Albengnefit, or more correctly Ibn Wáfid, was born in A. D. 997, and was still alive in A. D. 1068. He spent the greater part of his life at Toledo, the same town to which Gerhard of Cremona, a century after, resorted in pursuit of his Arabic studies.

The work of Albengnefit is very short, and a mere list of medicines arranged according to their effects. Thus he says under the head of *mundificantia lapidem ex vesica*. "*Mundificantia lapidem ex vesica aut renibus sunt, Cordumeni, et ciperi, et oleum de amygdalis dulcibus, et bdellium, et radix fœniculi, et olibanum, et amygdalæ amaræ, et decoctio radicis althææ, et lapis judaicus, et lapis inventus in Spongia marina, etc.*" The lapis judaicus is an alkaline production of some volcanoes. The Arabs found theirs near the Dead Sea; Dr. Daubeny met with it on the Ætna. That *great* discovery, the use of alkalines in stone complaints, appears therefore not to have been unknown to the Arabs.

At the time of Gerhardus, and during the succeeding century, the predilection for Arabic learning was very great in Europe. Every man who wished to acquire a superior education went to Toledo, where it seems there were regular schools for Arabic studies. In the fourteenth century it decreased because the Muhammadans had passed the zenith of their power.

Simon a Cordo of Janua, the Physician to Pope Urban IV., translated about A. D. 1288 a work on *Materia Medica*, from the Arabic, which in every respect is, the best book of the kind that existed during the middle ages.

The professed object is merely to collect in one book what Dioscorides and Galen wrote on *Materia medica*; but in fact the author has used almost all Arabic books of note in compiling his work. If we were to believe the list of authors prefixed to the Latin translation who are quoted in it, their number would amount to seventy-nine, but it happens that the same man is often put down twice and three times if the orthography of the name differed. The work contains four hundred and sixty-two articles.

This work is ascribed to Serapion. This Serapion, however, is different from Yahya Ben Serapion, who lived in the third century of the Hijrah; for he quotes authors like Ibn Wafid, who flourished in the eleventh century. Arabic Biographers mention Yahya Ibn Serapion, but they do not mention the author of the *Materia Medica* of which we are speaking; nor have I ever found him quoted. This makes me believe that his name was not Serapion, or that he was a Sicilian author whose works never came to the East. There is indeed an Arabic work on *Materia medica* in the Bodleyan library (No. 597) ascribed to Serapion which if it be identical with the Latin translation, would militate against our first supposition.

The *Tacvini Sanitatis Ellemhasem Elimitar* (i. e. *Taqwim as-Sihhat* by Abù-lkasim al-Mokhtár) con-

tain a *Materia Medica* in the shape of tables; and for this reason the German translation of this book has the title of "chess board of health." The author died in A. D. 1052. His work, as the form which he gave to it sufficiently indicates, is a mere compendium containing 280 articles. In the printed edition (Strassburgh 1531 fol.) the name of the translator is not mentioned, but in a MS. in the library of St. Marc at Venice, I have read that the translation was made for Manfred, King of Sicily.

We have Latin translations of two works of Averroes (Abûl-Walid Muhammed, Ibn Ahmed *Ibn Roshd*, died in A. D. 1198,) which have reference to *materia medica*. One is a monography on treacles, and has been printed in the tenth volume of *Aristotelis Opera cum commentario Averrois*. The other is his *liber universalis*, the fifth book of which is devoted to an account of simple medicines. The Latin translation of the latter work was according to the *Bibliotheca Hispana* (vol. II. p. 233) made upon a Hebrew version, which detracts considerably from its value.

The Latin translation of the *Teyzir* of Abymeron Avenzoar (i. e. Abû Merwan 'Abd ulmalik Ibn Zohr, died A. D. 1162) contains merely extracts from the Arabic text of the *Antidotarium*, which as it is observed in a preliminary note is intended for the use of families rather than for the profession. The Latin translation which has been published in Venice, 1490 and 1514, was made upon a Hebrew version in A. D. 1218, as we learn from the following postscript, folio 40, recto *completus est liber theysir anud-*

anar (i. e. التيسير في المداواة) cum laude dei: editus in Arbaico a discreto viro Abymeron, in practica et operatione medicine excellentissimo fideli regis Aynçohar, translatus Venetiis in confinio Sancti Salvatoris de Hebraico in Latinum a magistro Pathavino physico ipso sibi vulgarizante magistro Jacobo hebraeo in medicina et aliis scientiis plurimum erudito. Currente anno Domini nostri Jesu Christi millesimo ducentesimo octuagesimo primo die iovis quæ fuit vigesima prima augusti in meridie. Ducante (i. e. under the reign of the Doge) viro egregio et præclaro Dinno Joanne dandolo sui ducatus anno secundo. Annis arabum 679 mensis quarti diebus quinque."

The words sibi vulgarizante, mean that Jacob dictated to this Pathavinus an Italian translation, who put it into Latin.

Finally, I have to mention Kindí's, little work *De Gradibus Medicinarum*; which contains only the general principles for defining the degree of the temperament of medicines, and pointing out which are compatible and incompatible. The translator is anonymous.

These are most of the works on *Materia Medica* which were translated during the middle ages from the Arabic, and subsequently printed; at least they are all those which are in my collection; but a great many more works on *Materia Medica* were translated from the Arabic into Latin during the middle ages, which have never been printed. Some are to be found in the great libraries of Europe in MS.; others seem to be lost, for the rest, the works on *Materia Medica* which have been enumerated here

form alone a collection which in extent, number and size, surpasses the collection of modern books which most practitioners possess on this subject ; and with regard to their intrinsic value there are but few therapeutical agents which are not contained in them, and of which they do not detail the application. The following list of Ibn Baytar will show the correctness of this statement :—

السن، álussun. <i>Algssum.</i>	اترج، otroj. <i>Citrus medica.</i>
الطريال، átarylál. <i>Coronopus ?</i>	اثل، athl. <i>Tamarix orientalis.</i>
الكتار، ákothár.	اثمد، ithmid. <i>Stibium.</i>
الارغيس، árghys. <i>Berberis vulgaris. Radix.</i>	اثوا، athwá. <i>Mergus.</i>
الاميليس، ámilylis.	اثرار، athrár. <i>Berberis vulgaris.</i>
الاقشروو، áqosharwú.	اجاص، ijác. <i>Pruna.</i>
ابهل، abohol. <i>Sabina. Juniperus Sabina.</i>	احدس، ahdas. <i>Panici species.</i>
ابريسم، ibrysam. <i>Sericum.</i>	احداق المرفي، ahdaq el-marzy.
ابنوس، abenús. <i>Diospyros Ebenum.</i>	<i>Anthemis valentina ?</i>
ابوقابس، abúqábis. <i>Euphorbia spinosa.</i>	احرش، ahrash. <i>Linaria Elatine.</i>
ابوفسطى، abúfestus. <i>Hippophaestum. Cirsium stellatum.</i>	احريض، ihryz. <i>Carthamus tinctorius.</i>
ابن عرس، ebn 'irs. <i>Mustela vulgaris.</i>	اقلة اخلة، aqlah, aqlah. <i>Tribulus.</i>
ابار، abâr. <i>Plumbum nigrum.</i>	اخيون، aḫyún. <i>Echium rubrum.</i>
ابرة الراعي، ibrah el-rá'iy. <i>Acus pastoris. Geranium.</i>	اخينوس، aḫynús. <i>Erinus. Campanula Erinus.</i>
ابزار القطة، abzár el-qitṭah. <i>Sempervivum ?</i>	اخرساج، aḫrasáj.
ابزار، abzár. <i>Berberis.</i>	اداد، adád. <i>Acarna gummiifera.</i>
ابو ممدوت، abú mammút.	ادرار، adrár. <i>Daphne alpina.</i>
	ادريس، idrys. <i>Thapsia Asclepium.</i>
	اذخر، izḫhir. <i>Schoenanthus. Andropogon Schoenanthus.</i>

- اذريون، azryún. *Calendula officinalis* ?
 اذان الفار البستاني، azán el-fár el-hostány. *Parietaria cretica* ?
 اذان الفار البري، azán el-fár el-barry. *Myosotis palustris*.
 اذان الفار البري آخري، azán el-fár el-barry ákhra. *Myosotis arvensis*.
 اذان الفار آخر، azán el-fár ákher. *Myosotis alia*.
 اذان الارنب، azán el-arnab. *Cynoglossum officinale* ?
 اذان الغيل، azán el-fyl. *Arum Colocasia*.
 اذان الجدي، azán el-jady. *Plantago asiatica*.
 اذان الغنز، azán el-'anaz. *Alisma Plantago*.
 اذان القسيس، azán el-qasys. *Cotyledon Umbilicus*.
 اذان الكب، azán-el-dubbb. *Verbascum*.
 اذان الحيوانات، azán el-haywánát. *Aures animalium*.
 ارز، aroz. *Oryza sativa*.
 اراقيا، aráqya. *Vicia Cracca*
 ارقتيون، arqṭyun. *Verbascum ferrugineum* ?
 اردھالھ، ardhálaḥ. *Jus e farina crassiore paratum*.
 ارقتيون آخر، arqṭyún ákher. *Arctium Lappa*.
 ارمأك، armák.
 اربريد، arbaryd. ارمينون، orminon. *Salvia Horminum*.
 ارحيقت، arhyqanat. اراك، arák. *Cissus arborea*. Forsk.
 ارنكان، artekán. *Ochra*.
 ارغاموني، argámúny. *Papaver Argemone*.
 ارجان، arján.
 ارجوان، arjawán.
 ارقان، arqán.
 ارنب البري، arnab el-barry. *Lepus timidus*.
 ارنب البحري، arnab el-bahry. *Lepus marinus*. *Aplysia depilans*.
 ارجان، arján. *Elaeodendron Argan*.
 ارسطلوخيا، aristolúkyá. *Aristolochia longa*.
 ارطاماسيا، artámásyá. *Artemisia*.
 اربيان، irbyán. *Bupthalmum*.
 ازاديرخت، azádirakht. *Melia Azederach*.
 ازرور، azrúr. *Lotus*.
 اسرون، asarún. *Semina bursae pastoris*.
 اسارون، asárún. *Asarum europaeum*.
 اسطوخودوس، istúkhúdús. *Lavendula Stoechas*.
 اسفاناج، isfánáj. *Spinachium*. *Spinacia oleracea*.
 اسطر اطقوس، asṭer atykús. *Aster Amellus*.

- اصل, asal. *Juncus*. اشتغرار, ishtarghár. *Spina Ca-*
 اسقلبياس, asqlcbyás. *Asclepias. meli*.
Cinanchum Vincetoxicum. اشج, oshaj. *Gummi amoniac-*
 اسليخ, asolaykh. um.
 اسطرغاليس, astrághálys. *Oro-* اشنه, ashnah. *Muscus arbore-*
bis tuberosus ? us. *Alectoria Arabum. Ach.*
 اس, as. *Myrtus communis*. اشخيص, ishkhych. *Chamaeleon*
 اس بري, as barry. *Myrtus syl-* albus. *Acarna gummifera.*
vestris. Ruscus aculeatus. اشنان, oshnán. *Herba Alkali.*
 اسحفان, ashafán. *Salsola Kali* ?
 اسافكة, asáfakah. *Vitriolum vi-* اشنان داود, oshnán dáwud.
ride. Herba Hysopi sicca.
 اسبيوس, asyús. *Lapis asius*. اشراس, ishrás.
 اسفيداج, isfydáj. *Cerussa*. اشقون, ashqún. • *Isopyrum.*
 اسرنج, asranj. *Minium e cer-* اشكاتامن, ishkatámon.
ussa. اصابع صفر, açábi' çufr. *Digiti*
mala. اصابع فرعون, açábi' fara'ún. *Di-*
 اسفنج البحر, isfonj el-baḥr. *Spon-* giti *Pharaonis.*
gia marina. اسرار, isrár. اصابع هرمس, açábi' hermes. *Her-*
 اسرب, osrub. *Plumbum.* modactyli.
 اسطام, istám. *Chalybs*. اصابع العداري, açábi' el-'adáry.
 اسفست, isfast. *Medicago*. اصابع الفتيات, açábi' el-fatyát.
 اسفيوش, asfyúsh. *Plantago* *Ocimum Basilicum.*
Psyllium. اصف, açof. *Capparis spinosa.*
 اسد, asad. *Leo africanus*. اصطرک, içtorak. *Styrax.*
 اسد العدس, asad el-'adas. *Oro-* اصطفلين, içtöflyn.
banche caryophyllea. اضراس الكلب, azrás el-kalb.
 اسد الارض, asad el-arz. *Chama-* *Dentes canis. Polypodium*
eleon. اشجارة, ishjárah. *Erysimum.* *vulgare.*
Sisymbrium polyceraton. اطرمالة, aṭramálah.
 اشق, oshaq. *Gummi amonia-* اطرية, aṭryah.
cum. اطبا الكلب, aṭbá el-kalb. *Ubera*
canis.

اطا, atá. <i>Salix</i> .	اقران, aqrán. • <i>Cynaræ species</i> .
اطماط, atmát. <i>Avellana indica</i> .	اقنثيون, aqanthiyún. <i>Onopordon Acanthium</i> .
اظفار الطيب, azfár el-ṭayyib. <i>Ungues odorati</i> . <i>Strombus leniginosus</i> .	اقتياقتس, oqthyáqantus. <i>Oxyocantha</i> . <i>Mespilus Pyracantha</i> .
اعين السرطان, a'yún el-saraṭán.	اقشرج, aqsharaj. <i>Vinum ex baccis myrti</i> .
اغيراطيس, aghyrátys. <i>Achillea Ageratum</i> .	اقطي, aqṭa. <i>Sambucus nigra</i> .
اغيرس, aghyros. <i>Populus nigra</i> .	اقتنا اريبيقي, aqantá araybyqy. <i>Spina arabica</i> .
اغنس, aghnos. <i>Vitex agnus castus</i> .	اقتنا لوقي, aqantá lúqá. <i>Spina alba</i> .
اغروستس, aghrostis. <i>Agrostis</i> .	اقتين, aqṭyn.
اغالوخي, aghálúkhý. <i>Aloexylon Agalochumf. Lour</i> .	اكيل الملك, iklyl el-melik. <i>Melilotus officinalis</i> .
اغليقي, aghyqy. <i>Succus uvarum inspissatus</i> .	اكيل الجبل, iklyl el-jebal. <i>Rosmarinus officinalis</i> .
افيقر, afyqir. <i>Verbascum undulatum</i> .	اكتمكت, iktamakt. <i>Lapis aetites</i> .
افيتمن, aftytommun. <i>Cuscuta Epithymum</i> .	اكر البحر, okr el-baḥr. <i>Pilae marinae</i> .
افسنتين, afsontyon. <i>Artemisia Absynthium</i> .	اكرموران, ikmúbarán. <i>Verbena</i> .
افيبقطيس, afybaqtys. <i>Epipactis</i> .	اكرار, ikrâr. <i>Heliotropium</i> .
افيقورون, afyqowún. <i>Hypocoum procumbens</i> .	اكل نفسه, ákil nafsihu. <i>Euphorbium</i> .
افيون, afyún. <i>Opium. Papaver somniferum</i> .	البخ, 'albakḥ.
افيميديون, afymydyún. <i>Epimedium alpinum</i> .	البنّي, ellobná. <i>Oenanthe. Pedicularis tuberosa</i> .
افيوس, afyús. <i>Euphorbia Apios</i> .	الاومالي, elaumály. <i>Elaeomeli</i> .
افشرج, afsharaj. <i>Succus plantarum</i> .	الاطيني, elátyny. <i>Linaria Elatine</i> .
افعي, af'á. <i>Vipera</i> .	الوبن, alúbon. <i>Alypum. Globularia Alypum</i> .
افحوان, uqḥuwán. <i>Matricaria Parthenium</i> .	الاسفاقس, alisfáqus. <i>Salvia officinalis</i> .

- الاية, alyah. *Cauda ovis adiposa*.
 الاينون, alányún. *Inula Helenium*.
 الاطي, aláty. *Pinus Abies*.
 الب, ilb. *Datura ferox* ?
 الملعج, amlaj. *Phyllanthus Emblica*.
 امبرباريس, amberbárys. *Berberis vulgaris*.
 امبروسية, ambrúsyá. *Ambrosia maritima*.
 امدریان, amedryán.
 امسوخ, amsúkh. *Equisetum*.
 اماريطن, amárytun. *Amaranthus*. *Tanacetum annuum*.
 ام وجع الكبد, omni waji' el-kibd.
 ام غلان, omm ghilán. *Spina Aegyptiaca*. *Mimosa gummi-fera*.
 ام الكلب, omm el-kalb.
 امعا, am'á. *Intestina*.
 انجبار, anjabár.
 اناغورس, anághúros. *Anagyris foetida*.
 انثيليس, anthillys. *Anthyllis*.
 Cressa cretica.
 انجدان, anjudán. *Laserpitium*.
 Ferula asafœtida.
 انيسون, anysún. *Pimpinella Anisum*.
 انجرة, anjurah. *Urtica urens*.
 انغرا, anaghrá. *Onagra*. *Epilobium angustifolium*.
 انف العجل, anf el-'ijl. *Antirrhinum Orontium*.
 اندروصارون, andarúçarún. *Coronilla Securidaca*.
 اندهمان, andhimán.
 اندروطاتس, andrútáqos. *Androsaces Sertularia*.
 انبطرون, anbetrón. *Empetrum*. *Cithnium maritimum*.
 اناغليس, anághálys. *Anagallis arvensis*.
 انس النفس, ins el-nafs.
 انقون, inqún. *Rosa foetida*.
 انقراقون, anqaráqún.
 انزروت, anzarút. *Sorococolla*.
 انفحة, infahat. *Coagulum*.
 انبج, anbaǵ.
 انتلة السوداء, antolah el-súdá. *Zedbaria nigra*. *Aconitum neomontanum*. Willd.
 انتلة البیضا, antolah el-bayzá.
 Zedoaria alba.
 اندراسيون, andrásyún. *Peucedanum officinale*.
 انابيب, anábyb. *Equisetum*.
 انب, anab. *Solanum Melongena*.
 انجوك, anjúk. *Origanum Majorana*.
 انقرديا, anaqardyá. *Semecarpus Anacardium*.
 انجدان رومي, anjudán rúmy. *Seseli Mussiliense*.
 انتونيا, antúnyá. *Cichorium Endivia*.
 انبوب الراعي, anbúb el-rá'y. *Virga pastoris*.

اناكير, anákyr. *Anagyris*.

انفاق, onfáq. *Omphacium*.

انچسا, anjasá. *Anchusa tinctoria*.

انبالس, anbális. *Vitis vinifera*.

انبالس اغريا, anbális aghryá. *Tamus communis*.

انبالس لوقي, anbális lúqá. *Bryonia dioica*.

اندرونيا, andrúnyá. *Hyperic species*.

انظر, anzar. *Myrtus sylvestris*.

انهقان, inhaqán. *Eruca sylvestris*.

انهقان, inhaqán. *Crocus*.

انسلم, insalam. *Folia borass flabelliformis*.

انبالس مالينا, anbális málayna. *Bryonia alba*.

اهلال قسطا, ahlál qostá. *Mentha Saracenicá seu costus hortensis*.

اواقينقتوس, iwáqyntús. *Hyacinthus orientalis*.

انوبرخيس, anúbriḵys. *Onobrychis sativa*.

اونوما, aunúmá. *Onosma*.

اوبغلوڙين, uboghloḡyn. *Hypoglossum*. *Ruscus Hypoglossum*.

اوز, iwazz. *Anas Anser*.

اونوطيلن, aunúṭylon. *Species herbae vulnerariae*.

اولستيون, aulostýún. *Holosteum umbellatum*.

اوسبيد, úsbyd,

اوقيمويداس, auqymawydás. *Saponaria ocimoides*.

اوسيرس, ausyris. *Osyris alba*.

اورونجي, aurúbanjy. *Orobanché Caryophyllea*.

اوفاديا, aufádyá. *Succus momordicae elaterii*.

اوراسالينس, aurásálynus. *Althamanta Libanotis?*

اوليذا, aulyzá. *Olyra*.

اوقيمون, auqymún. *Ocimum Basilicum*.

اودر, údor. *Aqua*.

اونومالي, aunúmály. *Mulsum*.

اوتنا, autunná. *Otonna*.

ايماروقالس, aymárúqális. *Hemerocallis fulva*.

ايمونيپس, aymúnyṭis. *Scolopendrium Hemionitis*.

ايارانوطالي, ayáranúṭály. *Verberna supina*.

ايثوبيس, aythúbys. *Salvia Aethiopsis*.

ايداا ريذا, aydláá ryzá. *Idaea radix*. *Streptopus distortus*.

ايديقون, aydyqún. *Indicum*.

ايرىغارون, ayryghárún. *Senecio vulgaris*.

ايرسا, ayrisá. *Iris florentina*.

ايهقان, ayhuqán. *Brassica Eruca*.

ايدح, aydaḥ. *Sanguis Draconis*.

ايل, ayul. *Cervus Elaphus*.

- بابونج، bábúnaj. *Matricaria Chamomilla*.
 باذرانجیویه، bázranajbuye. *Me-
 lissa officinalis*.
 بازورد، bázaward. *Spina alba*.
Cirsium Acarha ?
 بازروج، bázarúj. *Ocimum Ba-
 silicum*.
 باقلا، báqilá. *Fabae graecae*.
Phaseolus vulgaris.
 باقلا قبطی، báqilá qobṭy. *Fa-
 bae aegyptiacae. Nelumbium
 speciosum*.
 بان، bān. *Glans ungentaria*.
Hyperanthera Moringu.
 بادانجان، bádínján. *Solanum
 Melongena*.
 باخروچی، bākḥirújy.
 بامیه، bámyah. *Hibiscus escul-
 entus et ficulneus*.
 بادیزهر، bádizehr. *Lapis Bezoar*.
 باطاطیس، bátátys. *Tussilago
 Petasites*.
 بارقلومانن، báriqlúmānun. *Lo-
 nicera Periclymenum*.
 باطاننجی، bátānanjy. *Cañanan-
 che. Ornithopus compres-
 sus* ?
 بابلس، báblös. *Peplus. Eu-
 phorbia Peplus*.
 باطس، báṭus. *Rubus idaeus*.
 بارود، bárúd. *Flores lapidis
 asii*.
 بادامک، bádámak. *Salicis spe-
 cies*.
 بادرد، báderd. *Gummi Galba-
 num*.
 باباری، bábáry. *Piper nigrum*.
 بارنج، báranj. *Cocos nucifera*.
 بارسطاریون، bárístáryún. *Ver-
 bena supina*.
 باروق، bárúq. *Cerussa*.
 ببرالی، hobrálá. *Aristolochia
 longa*.
 بیت، bita'. *Mulsum*.
 بحم، baḥam. *Fructus tamari-
 cis orientalis*.
 بیج، buj. *Fructus arbuti unedinis*.
 بخور مریم، bākḥúr Maryam. *Cy-
 clamen europaeum*.
 بخور مریم آخر، bākḥúr Maryam
 āḥher. *Alia cyclaminis spe-
 cies*.
 بخور الاکواد، bākḥúr al-akrád.
Peucedanum officinale.
 بخور البربر، bākḥúr el-berber.
Suffitus Berbericus.
 بخنج، buḫhtaj. *Coctum*.
 بادسکان، badaskán. *Spar-
 tium junceum*.
 بدقه، badaqah. *Sambucus Ebu-
 lus*.
 بذ، bazaz.
 بدلیون، bidellyún. *Bdellium*.
 برنجساف، baranjasáf. *Artemisia
 arborescens*.
 برسیم، barsym. *Aristolochia
 longa*.
 برمیادشان، barsyáwushán. *Adi-
 anthum Capillus Veneris*.

- بردي, bardy. *Cyperus Papyrus*.
 برطانيقي, britányqy. *Britanica*.
Rumex aquaticus.
 برنج, barnaj.
 ابو ثموت, برمانه, barbinah.
 برما مصر, barmá miçr.
 برناناطو, barnánátú.
 برسيدان, barsyáuná.
 برنوف, barnúf. *Conyza odora*.
 برنور, barnúr. *Blitum*.
 برد و سلام, bard wa salám. *Plantago major*.
 برهليا, barhalyá. *Semina anethi fœnticuli*.
 برسيداندر, barsyándarú. *Virga pastoris. Dipsacus Fullonum*.
 بروانيا, bruwányá. *Bryonia dioica*.
 برنجمشك, baranjamishk. *Melissa Calamintha*.
 برغشت, barghasht. *Genus oleris sylvestris*.
 بربر, berber. *Fructus arboris Arak*.
 برغوثي, baraghúthy. *Semina psylli*.
 بر, burr. *Triticum Spelta*.
 برمس, barbis. *Species quercus*.
 برقوق, barqúq. *Malum armeniacum*.
 برهفانج, barhafánaj. *Origanum Maru*.
 برابله, bráylah. *Veratrum nigrum*.
 برقه, barqah. *Arbutus Unedo*.
 برق, baraq. *Cytisus laniger*.
 برم, baram. *Flores speciei mimosarum*.
 برواق, barwáq. *Asphodelus ramosus*.
 بزر قطوا, bazr quṭúná. *Semina psylli. Plantago Psyllium*.
 بزر الكتان, bazr el-kattán. *Semina lini. Linum usitatissimum*.
 بسفايج, basfáyj. *Polypodium vulgare*.
 بسباسه, basbásah. *Macer. Myristica moschata*.
 بسذ, bossaz. *Corallium*.
 بستان ابروز, bostán abruz. *Amaranthus tricolor*.
 بسر, busr. *Dactyli maturescere incipientes*.
 بسباه, basbáh. *Ciceris genus*.
 بسباسيه, basbásyyah. *Meum athamanticum*.
 بستينج, bastynaj. *Tribulus*.
 بشت, basht. *Semen lolii*.
 بشام, bashám. *Amyris gileadensis*.
 بشماط, bishmát. *Panis biscoctus*.
 بشنة, bishnah. *Milii species*.
 بشمة, bashmah.
 بشنين, bashnyn. *Nymphaea Lotus*.
 بشبش, boshbosh. *Folia colocynthidis*.
 بشكارين, bashkaráyin. *Acarua gummiifera*.

بشاكّة, bashákah. *Gentiana*.

بصل, baṣal. *Allium Cepa*.

بصل القيء, baṣal el-qay. *Bulbus vomitorius*. *Narcissus Jonquilla*.

بصل الفار, baṣal el-fár. *Scilla maritima*.

بصل الذئب, basal el-zyb. *Bulbus esculentus*. *Muscari comosum*.

بصاق, bosáq. *Saliva*.

بصاق القمر, boṣáq el-qamar. *Lapis selenites*.

بعيرة, ba'yrah. *Mergus*.

بطم, buṭm. *Pistacia Terebinthus*.

بطيخ, baṭṭyḵh. *Cucumis Melo*.

بطيخ الهندي, baṭṭyḵh el-hindy. *Melo indicus*. *Cucumis Dschezr hindi*.

بطرة, baṭrah.

بط, baṭṭ. *Anas Boschas*.

بطراساليون, baṭrásályún. *Apium Petroselinum*.

بطباط, baṭbát. *Virga pastoris*. *Dipsacus Fullonum*.

بطارس, baṭáris. *Pteris aquilina*.

بطراخيون, baṭrákhyún. *Ranunculus asiaticus*.

بقلة الحمق, baqlah el-ḥomaqá.

Portulaca oleracea.

بقم, baqqam. *Cesalpinia Sapan*.

بقص, buqs. *Buxus sempervirens*.

بقم, boqqam. *Datura Metel*.

بقتوقرثون, biqotúqarthon. *Pycnacomon*.

بقلة اليمانية, baqlah el-yemániyah. *Amaranthus Blitum*.

بقلة العربية, baqlah al-'arabiyyah. *Amaranthus Blitum*.

بقلة الرمل, baqlah el-raml.

بقلة ذهبية, baqlah zahbyah. *Atriplex*.

بقلة الانصار, baqlah el-ánṣár.

Brassica oleracea.

بقلة باردة, baqlah báridah. *Convolvulus*.

بقلة يهودية, baqlah yahúdyah. *Eryngium campestre*.

بق, baqq. *Ulmus*.

بقلة اللثة, baqlah ellithah.

بقلة الخطايف, baqlah elḵhaṭá-ṭyf. *Chelidonium*.

بقلة اترجية, baqlah otrojyah. *Citrugo*. *Melissa officinalis*.

بقلة مباركة, baqlah mobárikah. *Portulaca oleracea*.

بقلة لينة, baqlah laynah. *Portulaca oleracea*.

بقلة دشتي, baqlah dashty. *Olera sylvestria*.

بقلة الملك, baqlah el-melik. *Fumaria officinalis*.

بقلة حمق بريّة, baqlah homaqá baryah. *Portulaca sylvestris*.

بقلة الرماة, baqlah el-rommáh. *Veratrum nigrum*.

- بقلة الاوجاع, baqlah el-aujá'. *Cacalia*.
 بقار, baqar. *Bos Taurus*.
 بكا, baká. *Amyris*.
 بالسان, baksán. *Amyris gileadensis*.
 بلبوس, bulbús. *Bulbus esculentus*. *Muscari comosum*.
 بليلىج, bellylij. *Myrobalanus bellirica*. *Phylanthus Emblica*.
 بلعوطه, bala'útah. *Aakothar*.
 بلوط, ballút. *Quercus*.
 بلوط الارض, ballút el-arz. *Glandes terrae*. *Teucrium Chamædrys*.
 بلوطي, ballútá. *Ballota nigra*.
 بلح, balah. *Dactylus prorsus immaturus*.
 بلحنة, bilkhitah.
 بلخية, balakhyah.
 بليحا, balayhá.
 بل, bull. *Cucumis indicus*.
 بلاذر, balázir. *Semecarpus Anacardium*.
 بلان, bilán.
 بلسكي, balaská. *Gatium Aparine*.
 بلنجاسف, balanjasaf. *Artemisia arborescens*.
 بلسن, bulsun. *Species lentis*.
 بلس, balas. *Species ficorum*.
 بلمى, balamy. *Species ficorum*.
 بنفسج, banafsaj. *Viola odorata*.
 بنحه, banhaḥ. *Cyperi radix*.
 بنجنگشت, banjankasht. *Vitex agnus castus*.
 بنطانلن, banṭá filun. *Potentilla reptans*.
 بنج, banj. *Hyosciamus albus*.
 بندق, bunduq. *Nux ovellana*. *Guilandina Bonduc*.
 بندق هندي, bunduq hindy. *Nux ovellana indica*.
 بنك, bunk. *Nascapton*.
 بنتومة, bantúmah.
 بنات الوردان, banát el-wardán. *Lumbrici*.
 بنات الرعد, banát el-ra'd. *Fungi*.
 بنات النار, banát el-nár. *Urtica*.
 بنحشكروان, banḥashkarwân. *Senecio fraxini orni*.
 بهار, bahár. *Anthemis valentina*.
 بهيج, bahyj. *Orchidis species*.
 بهمن, bahman. *Radix Behen albi*. *Centaurea Behen*. *Behen rubrum*. *Salvia hamatodes*?
 بهمي, boh má. *Phoenice. Lolium perenne*.
 بهرامج, bahrámaj. *Salix Balchica*.
 بهري, bahary.
 بهرم, bahram. *Species cuici*.
 بهش, bohsh. *Bdellium recens*.
 بهق الحجر, bahaq el-hajar. *Lichen*.
 بوريدان, buzidán. *Orchis Morio*.

- بوش دربندي, bush derbendy. بيض, bayz. *Ovum*.
 بوصير, búcyr. *Verbascum undulatum*. بيقية, byqyah. *Vicia*.
 بونويو, búnyún. *Bunium*. بيش, bysh. *Aconitum album* ?
 بولوغالين, bolúghályn. *Polygon. Polygala vulgaris*. بيش مش بيش, byshá, mush, bysh. *Napellus Moysis* ?
 بولامونيون, bolámúnyún. *Polemonium caeruleum*. بيارون, bayárún. *Radix nymphaeae loti*.
 بولوغاناٲون, búluǵhánáton. *Convolvallaria Polygonatum*. تاة, táta. *Lacerta Chamaeleon*.
 بلوقنيم, bolúqnymon. *Polycnemum. Mentha arvensis*. تامول, támúl. } *Piper Betel*.
 بورشكة, búrshaká. *Suffitus berbericus*. تانبول, tánbúl. }
 بورق, búraq. *Nitrum*. تالغيت, tálaghyt. تاكوت, tákút. *Euphorbiae species*.
 بوريطس, búrytes. *Lapis pyrites*. تاغندست, tághandasat. *Meum athamanticum*.
 بوقيصا, búqyçá. *Ulmus*. تاسمت, tásimat. تبال, tibál. *Doronicum Pardalianches*.
 بوشاد, búshád. *Rapum. Brasica Rapa*. تبين, tibn. *Stramen*.
 بوٲانية, bútányah. *Vitis nigra. Bryonia alba*. تبى مكة, tibn, mekkah. *Stramen Meccense. Andropogon Schoenanthus*.
 بوغلسين, búghloçyn. *Buglossum. Borago officinalis*. تدرج, tadruj. *Phasianus Colchicus*.
 بولوبوديون, búlúbodyún. *Polypodium vulgare*. ترمس, termes. *Lupinus Termes. Forsk*.
 بولاد, búlád. *Scoria ferri*. تربد, turbud. *Convolvulus Turpethum*.
 بولوطوربحون, bolúťuryhún. *Adiantum Capillus Veneris*. ترنجبين, taranjaby. *Ros mel-leus. Species mannae*.
 بول الابل, bawl el-ibl. *Urina camelii*. تراب صيدا, turáb saydá. *Pulvis terrae salebrosae*.
 بوقشرم, búqishram. تراب الشارد, turáb el-shárid. *Pulvis insulae elscharid*.
 بول, bawl. *Urina*.
 بينب, baynab. *Ruscus Hypophyllum et racemosus*.

- تُرَاب الْقِي، turáb el-qay. *Gummi cynaræ scolymí.*
 تُرْفَاس، tırfás. *Fungi species.*
 تُرُنْجَان، turunján. *Melissa officinalis.*
 تُرْبَةُ الْعَسَلِي، turbah el-'asly. *Fructus garcinie mangostanæ.*
 تُرْمَاهَان، tarmáhan. *Ferrum impurum.*
 تُرَهْلَان، tarahlán. *Conyza.*
 تُشْمِيزَج، tashmyzaj.
 تُشْتِيُولُون، tashtyúlún. *Polypodium vulgare.*
 تُفَاح، tuffáh. *Pyrus Malus*
 تُفَاح الْأَرْض، tuffáh el-arz. *Matricaria Chamomilla.*
 تُفَاح الْجُون، tuffáh el-jún. *Atropa Mandragora.*
 تُفَاح أَرْمَنِی، tuffáh armeny. *Fructus pruni armeniacæ.*
 تُفَاح فَارِسی، tuffáh fârisy. *Amygdalus persica.*
 تُفَاح مَائِي، tuffáh máy. *Citrus medica.*
 تُفَاف، tufáf. *Sonchus oleraceus.*
 تُقْدَاه، tiqdah. *Coriandrum sativum.*
 تُمْر، tamr. *Phoenix dactylifera.*
 تُمْر هِنْدِي، tamr hindy. *Tamarindus indica.* [codilus.
 تُمْسَاح، tımsáh. *Lacerta Crocota.*
 تُمْتُمْ، tumtum. *Rhus coriaria.*
 تُمْلُوك، tumlúk. *Plumbago europæa?*
 تُنْنِيْن، tinnyn. *Drachinus Draco.*
 تُنْكَار، tankár. *Chrysocolla.*
 تُنْوِم، tanwim. *Heliotropium.*
 تُنْوُب، tannúb. *Pinus picea.*
 تُنْ، tunn. *Scomber Thynnus.*
 تُجْرَه، tújareh. *Cacalia.*
 تُثْ، túth. *Morus.*
 تُثْ الْوَحْشِي، túth el-waḥashy. *Rubus caesius.*
 تُدْرِي، túdary. *Erysimum. Sisymbrium Polyceraton.*
 تُتْيَا، tútya. *Tutia.*
 تُوبَال، túbál. *Squama aeris.*
 تُوز، túz. *Populus nigra.*
 تُيْن، tyn. *Ficus Carica.*
 تُفَاسْيَا، tháfsyá. *Thapsia Asclepium.*
 تُفَالِسْطُون، thálistún. *Thalictrum minus.*
 تُفَاقِبِ الْحَجَر، tháqib el-ḥajar. *Polypodium vulgare.*
 تُجَيْر، thajyr. *Vinaceum.*
 تُرْبَةُ سَكْمَة، tharbah samikah. *Verbascum undulatum.*
 تُدْي، thady. *Mamma.*
 تُثْرِيَا، tharyá. *Senecio vulgaris.*
 تُثْلَب، tha'lab. *Canis Vulpes.*
 تُفَا، thuffá. *Sisymbrium Nasturtium.*
 تُثْلَب، thalib.
 تُثْلَج وَجَلِيد، thalaj wa jalyd. *Nix et glacies.*
 تُثْلَج مِينِي، thalaj syny. *Flores lapidis asii.*

- ثَلَاثَان, thalathán. *Solanum nig- rum*. جَدَب, jaḥḍab. جَدَفَى, jadafy. *Hyacinthus ori- entalis*. ثَمَام, thumám. *Panicum Seti- gerum*. Forsk. جَدَوَار, jadwár. *Amomum Ze- doaria*. ثَمْنَش, thumnush. *Frutex*. جَرَجِير, jirjyr. *Brassica Eruca*. ثُوم, thúm. *Allium sativum*. جَرَجِير الْمَا, jirjyr el-má. *Eruca aquatica*. *Erysimum barba- rea*? ثُوم الْبَرِّي, thúm el-barry. *Teu- crium Scordium*. ثُوم كَرَاثِي, thúm korráthy. *Al- lium Porrum*. جَرِي, jary. *Silurus Glanis*. ثُومَس, thúmus. *Thymus*. جَرَاد, jarád. *Gryllus migra- torius*. ثُومَالَا, thúmálá. *Thymalaea*. جَرَاد الْبَحْرِ, jarád el-baḥr. *Can- cer Camarus*. دَافْنِي, Daphne Gnidium. ثِيل, thyl. *Triticum repens*. جَاوَشِير, jáwashyr. *Panaces He- racleum*. *Ferula Opoponax*. جَاوَرَس, jáwars. *Panicum mili- aceum*. جَارَالْنَهْر, jar el-nahr. *Potamo- ge- ton natans*. جَاسُوس, jáśús. *Papaver spu- meum*. جَارَكُون, járkún. *Macis*. جَاسِمِي, jasmy. *Tribulus*. جَامِسَة, jámisah. *Nelumbium speciosum*. جَاسَاد, jasá, jasád. *Crocus*. جَاشِيَش, jashysh. *Farina cras- sior*. جَادِي, jáddy. *Crocus sativus*. جَاشِي, jiçç. *Gypsum*. جَامُوس, jámús. *Bos Buffelus*. جَعْدَة, ja'dah. *Teucrium Polium*. جَبْن, jubn. *Caseus*. جَعْدَة, ja'dah. *Teucrium creti- cum*. جَبْسِين, jibsyn. *Gypsum*. جَعْقِيل, ja'qyl. *Orobanche Cary- ophylla*. جَبْس الْعِرَاس, jibs el-'arás. *Gyp- sum*. جَبْس الْقَوْبِين, jibs el-qúbyn. جَعْدَة الْقَنِي, ja'dah el-qana. *Adi- anthum Capillus Veneris*. جَبْرَة, jabrah. *Holostium umbel- latum*. جَفَتِ افْرِيد, jift afaryd.

- جفري, jafry. *Spatha palmarum*. جمار, jummár. *Medulla pulmonum*.
 جفت البلوط, jaft el-balút. *In-
 terior cortex glandis*. ججم, jimjim.
 جلنار, julnár. *Flores punicae granati*. جمهوري, jumhúry. *Succus inspissatus uvarum*.
 جلبان, julbán. *Pisa. Trifolium melilotus diffusum*. جمل, jaml. *Camelus Dromedarius*.
 جلبهنگ, jalbahnak. *Reseda mediteranea*. جنطيانا, juntyáná. *Gentiana lutea*.
 جلود, julúd. *Pelles*. [nina. جندبادستر, jundubádestar. *Castor Fiber*.
 جلنسرين, julnisryn. *Rosa ca-*
 جلجلان, juljulán. *Sesamum orientale*. جنجيديون, jinjydyúu. *Gingidium. Daucus Visnaga*.
 جلجلان الحبشية, juljulán el-habeshyah. *Semina papaveris somniferi*. ججل, junjul. *Humulus Lupulus*.
 جالجلان المصري, juljulán 'el-miçry. *Nymphaea Lotus*. jany. *Arbutus Unedo*.
 جلوز, jillawz. *Guilandina Bonduk*. حدد الهرمان, jund el-harmán. *Flores punicae granati*.
 جلوز, jillawz. *Flores amygdali persicae*. جنجر, junjur. *Dipsacus Fullonum*.
 ج, julanjaby. *Mel rosarum*. جندوريه, juntúryah. *Centaureum. Chironia Centaureum*.
 جليف, jalyf. *Semen lolii*. جنار, junnár. *Platanus orientalis*.
 جلهم, jalham. *Zizyphus Spina Christi*. جنا, jináh. *Innula Helenium*.
 جلنجويج, jalanjawy'. *Mentha Pulegium*. جناح النسر, jináh el-nasr. *Cynara Scolymus*.
 جلمانا, jalmáthá. *Cucumis*. جوز, jawz. *Juglans regia*.
 جيميز, jommayz. *Ficus Sycomorus*. جوز بوا, jawz buwwá. *Myristica moschata*.
 , jumsat. *Lapidis species*. جوز ماتل, jawz mátil. *Datura Metel*.
 جمسفرم, jumsafaram. *Ocimum grutissimum*. جوز القى, jawz el-qay. *Strychnos nux vomica*.
 جمسفرم, jumsafaram. *Ocimum grutissimum*. جوز الرقي, jawz el-ruqá. *Elcaja Jemanensis*.

- جوز الخمس, jawz el-ḵhams. حافرالمهر, ḥáfir el-muhr. *Colchicum autumnale*.
- جوز عېهر, jawz 'abhar. حاليبي, ḥáliby. *Aster Amellus*.
- جوز القطا, jawz el-qaṭá. حاج, ḥáj. *Hedysarum Alhagí*.
- جوز المريج, jawz el-maryj. *Phy-salis Alkekengi* ? حالوم, ḥálúm. *Anchusutinctoria*.
- جوز الانهار, jawz el-anhár. *Sedum* حاليق الشعر, ḥáliq el-sha'r. *Bryonia diosica*.
- جوز الشوك, jawz el-shark. *Nuxabyssinica*. حارود, ḥárwad. *Castor Fiber*.
- جوز الكوثل, jawz el-kawthal. حانور, ḥánúr. *Sambucus nigra*.
- جوز ارمانيس, jawz armányús. حب النيل, ḥabb el-nyl. *Indigoferae tinctoriae semen*.
- Nuxabyssinica*. حب الكلي, ḥabb el-kula. *Anagyris foetidae semen*.
- جوز جذم, jawz jandum. *Garcinia Mangostana*. حب الزلم, ḥabb el-zelem. *Bacca Zelemicae*.
- جوزر, jawzar. حب العزيز, ḥabb el-'azyz. *Bacca Zelemicae*.
- جوز هند, jawz hind. *Cocos nucifera*. السمنة, ḥabb el-samanah. *Cannabis sativa*.
- جوز المريج, jawz el-maraj. *Semina physalis alkekengi*. حب البشم, ḥabb el-basham. *Amyris Opobalsamum*.
- جوز ارقم, jawz arqam. حب الراس, ḥabb el-rás. *Delphinium Staphisagria*.
- جواهر, jawhar. *Margarita*. حب اللهو, ḥabb el-lahw. *Phy-salis Alkekengi semen*.
- جولف, jawlaf. حب الاثل, ḥabb el-athl. *Semen tamaricis*.
- جوزان, jawyzán. *Verbascum undulatum*. السودا, ḥabb el-súdá. *Semen glycirrhizae glabrae*.
- جوصيا, júcyá. حب الملوك, ḥabb el-molúk. *Semen euphorbiae nereifoliae*.
- جيدار, jydár. *Quercus coccifera*. حب الفقد, ḥabb el-faqd. *Semen viticis agni casti*.
- جيوس, jyús. *Pistacia vera*. حب العروس, ḥabb el-'arús. *Piper Cubeba*.
- حاشا, ḥáshá. *Satureja capitata*.
- حاشيش, ḥáshysh.
- حافظ الاجساد, ḥáfiz al-ajsád. *Teucrium Scordium*.
- حافظ الموتى, ḥáfiz el-múta. *Teucrium Scordium*.
- حافر, ḥáfir. *Ungula*.

- حب القنيدية, ḥabb el-qnydyeh. *Semen cvidii.*
 حب الرشاد, ḥabb el-rashád. *Semen sisymbrii nasturtii.*
 حب القلقل, ḥabb el-qulqul. *Semen punirae granati.*
 السنّا, ḥabb el-s'inná. *Semen rutae.*
 حب القلت, ḥabb el-qalat.
 حب الفني, ḥabb el-faná. *Fructus solani nigri.*
 حبّابب, ḥubáḥib. *Lampyrus noctiluca.*
 حباري, ḥobára. *Otis tarda.*
 حبرج, ḥubrah.
 حبر, ḥabr. *Nerium Oleander.*
 حبة خضرا, ḥabbah kḥazrá. *Pistaciae terebinthi fructus.*
 حبة الحلوة, ḥabbah el-ḥalwah.
Semen pimpinellae anisi.
 حبّال المساكين, ḥabl el-masákyn.
Hedera Helix.
 حبق, ḥabaq. *Mentha Pulegium.*
 حبق الميا, ḥabaq el-mayá. *Mentha aquatica.*
 حبق القنا, ḥabaq el-qithá. *Origanum Majorana.*
 حبق النقيّل, ḥabaq el-naqyl. *Origanum Majorana.*
 حبق الراعى, ḥabaq el-rá'ay. *Artemisia orientalis.*
 حبق النبطى, ḥabaq el-nabaṭy. *Ocimum Basilicum.*
 حبق البقر, ḥabaq el-baqr. *Matricaria Chamomilla.*
 حبق القرنفلي, ḥabaq el-qaranfuly. *Melissa Calamintha.*
 حبق الريحاني, ḥabaq el-ryḥány. *Melissa Officinalis.*
 حبق الصعترى, ḥabaq el-sa'tary. *Ocimum Basilicum.*
 حبق الشيوخ, ḥabaq el-shuyúkh. *Origanum Maru.*
 حبيقة, ḥabyqah. *Parietaria Officinalis.*
 حبقالة, ḥabqálah. *Parietaria Officinalis.*
 حتى, ḥaty.
 حترما, ḥatharmá. *Mentha.*
 حجر لبني, ḥajar lubna. *Lapis Galactites. [Melitites.]*
 حجر عسلي, ḥajar 'asly. *Lapis*
 حجر مشق, ḥajar moshaqqaq. *Lapis Schistus.*
 حجر قبطى, ḥajar qobty. *Lapis Morochtus.*
 حجر حبشي, ḥajar ḥabshy. *Lapis Thyites.*
 حجر يهودي, ḥajar yahúdy. *Lapis Judaicus.*
 حجر القمر, ḥajar el-qamr. *Lapis Selenites.*
 حجر افريقى, ḥajar afryqy. *Lapis Phrygius.*
 حجر الاساكفة, ḥajar el-asákifah. *Lapis calceolariorum.*
 حجر الثجيرة, ḥajar el-thajirah. *Lapis faecis.*
 حجر السلوان, ḥajar el-sulwán. *Lapis exhilarans.*

- حجر الكلب, *hajar el-kalb. Lapis Canis.* حجر النار, *hajar el-nár. Lapis Pyrites.*
- حجر فارامي, *hajar farámy. Lapis Thracius.* حجر الزيادة, *hajar el-ziyádah. Lapis Pyrites.*
- حجر عربي, *hajar 'araby. Lapis Arabicus.* حجر بولس, *hajar búlus. Lapis Pauli.*
- حجر غاغاطيس, *hajar ghúghátys. Lapis Gagates.* حجر المثانة, *hajar el-maṭhánah. Lapis vesicae urinariae.*
- حجر الاسفنج, *hajar el-isfunj. Lapis spongiae.* حجر الحمام, *hajar el-ḥamám. Lapis balneorum.*
- حجر الخزفي, *hajar el-khazafy. Lapis luteus.* حجر البقر, *hajar el-baqr. Lapis tauri.*
- حجر الاثدي, *hajar el-atlhdy. Lapis mammarum.* حجر الحوت, *hajar el-hút. Lapis piscis.*
- حجر الحيت, *hajar el-ḥayat. Lapis Ophites.* حجر البحري, *hajar el-baḥry. Lapis marinus.*
- حجر هندي, *hajar hindy. Lapis Indicus.* حجر الافوج, *hajar el-afrúj. Lapis fissus.*
- حجر الرصاصي, *hajar el-raṣácy. Lapis plumbeus.* حجر الرحي, *hajar el-raḥa. Lapis molaris.*
- حجر منفي, *hajar memfy. Lapis Memphites.* حجر ارمني, *hajar armeny. Lapis Armeniacus.*
- حجر البرام, *hajar el-barám. Lapis ollae?* حجر البسر, *hajar el-busr.*
- حجر البلور, *hajar el-ballawr. Crystal lapis.* حجر سفاف, *hajar safáf. Pumex.*
- حجر الناحطس, *hajar el-náḥaṭes.* حجر بارقي, *hajar báriqy.*
- حجر حديدي, *hajar ḥadydy. Lapis ferreus.* حجر اسيدوس, *hajar asyús. Lapis Asius.*
- حجر الكذك, *hajar el-kazak.* حجر الشريط, *hajar el-sharyṭ. Lapis Selenites.*
- حجر عراقي, *hajar'iráqy. Lapis Iraccensis. [galli.]* حجر الدم, *hajar el-dam. Lapis Haematites.*
- حجر الديك, *hajar el-dyk. Lapis* حجر النسرو العقاب, *hajar el-nasr wa el'aqáb. Lapis vulturis et aquilae.*
- حجر الاصم, *hajar el-aṣam. Lapis Pyrites.*

- حجر النبت، *hajar el-naht. Lapis* حرزون، *harzawn. Lacerta*
aquilae et vulturis. Stellio.
حجر ماسكة، *hajar másikah. La-* حرجوان، *harjuwán. Locusta.*
pis aquilae et vulturis. حربا، *hərbá. Lacerta Chamae-*
حجر الشجري، *hajar el-shajary. leon ?*
Corallium. حرلة، *haralah. Bdellium recens.*
حجرة مشوية، *hajrah mashwiyah. حربت، hurbuth.*
Calx viva. حريق، *horrayq. Urtica.*
حجل، *hajal. Tetrao rufus.* حزاز الصخري، *hazáz el-çakħary.*
حديد، *hadyd. Ferrum.* *Lichen.*
حديددي، *hadydy. Stachis recta ?* حزاء، *hazáh.*
حداة، *hidáh. Falco Milvus ?* حزا، *hazá. Anethum sylvestre.*
حذج، *hadaj. Cucumis Colocyn-* حزاء اخري، *hazáh akħry.*
this. حزف، *hazfaq. Semina speciei*
حداق، *hadaq. Solanum corda-* *bursae pastoris.*
tum. حزفوق، *hazfúq. Semina speciei*
حرض، *horz. Salsola Kali ?* *bursae pastoris.*
حرمال، *harmal. Peganum Har-* حزة البقر، *hazarah el-baqr. La-*
mala. pis tauri.
حرملة، *harmalah.* حزنبل، *hazambal. Myriophyl-*
حرمارق، *harmáraq. Fructus ta-* *lum.*
maricis. حسك، *hasak. Tribulus terrestris.*
حرف، *ħurf. Lepidium sativum.* حسل، *ħisl.*
حرف السطوح، *ħurf el-satúħ.* حشيشة الزجاج، *ħashyshah el-zijáj.*
Thlaspi Bursa Pastoris. *Parietaria officinalis.*
حرف مشرقى، *ħurf mashreqy.* حشيشة الداحس، *ħashyshah el-dá-*
Lepidium Draba. *his. Polycarpon tetraphyllum.*
حرف الما، *ħurf el-má. Cardamine* حشيشة الاسد، *ħashyshah el-ásad.*
pratensis. *Orobanche Caryophyllea.*
حرب، *haryr. Sericum.* حشيشة السعال، *ħashyshah el-*
حرشا، *ħarshá. Species eruae.* *su'ál. Tussilago Farfara.*
حرشف، *ħarshaf. Cynara Sco-* حشيشة الطحال، *ħashyshah el-*
lymus. *taħhál. Asplenium Ceterach.*
حرشف بستاني، *ħarshaf bostány.* حشيشة الاعقي، *ħashyshah el-a'fá.*
Cynara hortensis. *Galium Aparine.*

- حشيشة دودية, hashyshah dúdiyah. *Asplenium Scolopendrium.* حمص الامير, himmaç el-emyr. *Tribulus terrestris.*
- حشا, hashá. *Anchusa tinctoria.* حماض, hummáz. *Rumex obtusifolius.*
- حشل, hashl. *Vinum bdellii.* حماض الـ, hummáz el-má. *Rumex aquaticus.*
- حشف, hashf. *Bdellium siccum.* حماض الارنب, hummáz el-arnab, *Cuscuta Epithymum.*
- حشيشة البرص, hathyshah el-baraç. *Cerinth minor.* حماض البقر, hummáz el-baqr. *Rumex alpinus.*
- حصرم, hiçrim. *Omphaces.* حماض السواقي, hummáz el-sawáqy. *Rumex acutus.*
- حفض, huçuç. *Rhamnus infectorius.* حمض, hamziz. *Oxalis corniculata.*
- حضير, hazyr. *Daphne alpina.* حفا, hafá. *Cyperus Papyrus.*
- حلبة, hulbah. *Trigonella Foenum graecum.* حلق, halaq. *Vitis quinquefolia?* حماء, himáham. *Ocimum.*
- حلبينا, halbythá. *Euphorbia Peplis.* حمار, hamar. *Tamarindus indica.*
- حليبب, halbyb. حماء, hamát. *Ficus.*
- حلفا, halfá. *Arundo epigejos.* حمم, himhim. *Borago officinalis.*
- حلاب, haláb. حم, ham. *Alkali.*
- حلتيت, hilyt. *Ferulae assae foetidae gummi.* حماء, hamám. *Columba.*
- حلدوب, halbúb. *Mercurialis annua.* حمار اهلي, himár ahaly. *Equus Asinus.*
- حلبوب, halbúb. *Helleborus.* حمار قبان, himár qabbán. *Oniscus Asellus.*
- حلزون, halazún. *Cochlea.* حنطة, hintah. *Triticum Spelta.*
- حلبلاب, halbaláb. حنطة رومية, hintah rúmiyah. *Triticum romanum.*
- حلحل, halhal. *Bulbus.* حنظل, hançal. *Cucumis Colocynthis.*
- حلم, halam. *Ricinus.* حنطة, hintah. *Triticum Spelta.*
- حلو سید, halúsyá. *Astragalus verus.* حنطة رومية, hintah rúmiyah. *Triticum romanum.*
- حماما, hamámá. *Amomum. Cissus vitiginea?*
- حمص, himmaç. *Pisum sativum.*

- حندقوقا, ḥandaqúqá. *Melilotus caeruleus*.
 حندقوقا البري, ḥandaqúqá el-bar-
 ry. *Trigonella elatior*.
 حنا, ḥinná. *Lawsonia inermis*.
 حنا الغولة, ḥinná el-ghuwalah. *Anchusa tinctoria*,
 حنا قریش, ḥinná qorraysh. *Lichines*.
 حنامعجون, ḥinná m'ajún. *Indigofera tinctoria*.
 حنجره, ḥanjarah. *Larynx*.
 حوز, ḥawwaz. *Populus alba*.
 حوار, ḥawár. *Populus alba*.
 حوسني, ḥúsany. *Fructus jawsiae*.
 حوار رومي, ḥawár rúmy. *Populus nigra*.
 حوك, ḥawk. *Ocimum Basilicum*.
 حومر, ḥumar. *Tamarindus indica*.
 حواري, ḥawwára. *Farina alba*.
 حوحم, ḥawḥim. *Rosa rubra*.
 حومانة, ḥawmánah. *Psoralea bituminosa*.
 حواصل, ḥawáçil. *Avis species*.
 حي العالم, ḥay el-'álim. *Sempervivum arboreum*.
 حي العالم الصغير, ḥay el-'álim el-
 çaghyr. *Sedum rupestre*.
 خانق النمر, ḵháníq el-namr. *Doronicum Pardalianches*.
 خانق الذيب, ḵháníq el-zyb. *Aconitum Napellus*.
 خانق الكلاب, ḵháníq el-kiláb. *Cynanchum erectum*.
 خانق الكرسة, ḵháníq el-karsa-
 nah. *Orobanch Caryophyllea*.
 خامابوتي, ḵhámábúqa. *Stachelina Chamapeuce*.
 خاماقيسوس, ḵhámáqysús. *Glechoma hederacea*.
 خاماسوتي, ḵhámásúqa. *Euphorbia Chamaesyce*.
 خامالون, ḵhámáláún. *Lacerta Chamaeleon*.
 خامالون لوقس, ḵhámáláún law-
 qos. *Acarna gummifera*.
 خامالون ملىني, ḵhámáláún mely-
 na. *Carthamus corymbosus*.
 خامالا, ḵhámáláá. *Mezereum*.
 خاليدونيون, chálydonyon. *Che-
 lidonium majus*.
 خاماملن, ḵhámámillon. *Matri-
 caria Chamomilla*.
 خامادافني, ḵhámádáfny. *Ruscus
 racemosus*.
 خافور, ḵháfúr. *Myrrhæ species*.
 خامايطيس, ḵhámábytyš. *Aju-
 ga Chamaepitys*.
 خامادريوس, ḵhámádryús. *Teu-
 crium Chamaedrys*.
 خاما اقطي, ḵhámá aqṭa. *Sam-
 bucus Ebulus*.
 خامشة, ḵhámishah. *Plumbago
 Zeylanica*.
 خبازي, ḵhubbáza. *Malva ro-
 tundifolia*.

- خبة, khabbah. *Sisymbrium Polyceron*.
 خبث, khabath. *Scoria*.
 خبربوك, khabarbúk. *Mespilus Pyracantha*.
 خبز, khubz. *Panis*.
 خبز رومي, khubz rúmy. *Panis romanus*.
 خبز القرد, khubz el-qurúd. *Ari species*.
 خبز المسيح, khubz el-masyh. *Cyclamen europaeum*.
 خبز الغراب, khubz el-ghoráb. *Anthemis valentina*.
 خثرف, khathraf. *Artemisia Absinthium*.
 خثري, khatry. *Nymphaea loti species*.
 خثا, khathá. *Stercus bovinum*.
 خدرىك, khadryk. *Aranea*.
 خرنوب, khirnúb. *Ceratonia Siliqua*.
 خرنوب هندي, khirnúb hindy. *Cassia Fistula*.
 خرنوب نبطي, khirnúb nabaty. *Mimosa nilotica*.
 خرنوب خنزير, khirnúb khinzir. *Anagyris foetida*.
 خردل, khardal. *Sinapis nigra*.
 خردل البري, khardal el-barry. *Sinapis arvensis*.
 خردل فارسي, khardal fárisy. *Lepidii species*.
 خرفق, kharfaq. *Sinapis persica*. *Lepidii species*.
 خروج, khirwa'. *Ricinus communis*.
 خربق ابيض, kharbaq abyaz. *Veratrum album*.
 خرو الحمام, kharw el-ḥamám. *Fructus garciniae mangostanae*.
 خربق اسود, kharbaq aswad. *Hel-leborus orientalis*. *Lam*.
 خرو سقوما, khrúsoqomá. *Chrysoscoma Linosyris*.
 خرطال, kharṭál. *Avena*.
 خروسوغانون, khrúsoghánon. *Le-ontice Chrysogonon*.
 خردن, khardan. *Plantago major*.
 خرو الحمام, khurw el-ḥamám. *Stercus columbinum*.
 خرب, kharyr. *Melonis species*.
 خرنبطاس, kharanbatás, *Origanum Maru*.
 خروسوقلا, khrúsúqollá. *Chrysocollu*.
 خرقة, khriqah. *Portulaca oleracea*.
 خرقى, kharqa. *Pisa*.
 خرقع, kharqa'. *Semina calotropis giganteae*.
 خديل, khadyl. *Rapum sylvestre*.
 خراق, kharáq. *Calotropis gigantea*.
 خرقطان, kharqaṭán.
 خريج, kharya'.
 خراطين, kharátyn. *Lumbricus terrestris*.
 خرم, khorram.

خزف, khazaf. *Testae*.

خزامي, khuzáma. *Cheiranthus sylvestris*?

خس, khass. *Lactuca sativa*.

خمس الحما, khass el-himár.

Sonchus oleraceus.

خشخاش, khashkhásh. *Papaver somniferum*.

خشخاش المنثور, khashkhásh el-manthúr. *Papaver Rhoeas*.

خشخاش مقرون, khashkhásh mo-qarrin. *Glaucium luteum*.

خشخاش زبدي, khashkhásh zabdy. *Gratibula officinalis*?

خشكنجبين, khashkanjabyn. *Mel siccatius*.

خشكار, khushkár. *Farina furfuracea*.

خصى الكلب, khuṣa el-kalb. *Orchis papilionacea*.

خصى النعلب, khuṣa el-tha'lab. *Tulipa gesneriana*.

خصى هرمس, khuṣa hermes.

Mercurialis annua.

خصى الديك, khuṣa el-dyk.

خصى المواشي, chuṣa el-mawáshy.

Testiculi jumentorum.

خصىة البحر, khuṣyah el-baḥr. *Castoreum*.

خصلاف, khaṣláf. *Bdellium mecense*.

خضمي, khuzmy. *Althaea fici-folia*.

خطر, khuṭr. *Indigofera tinctoria*.

خطاف, khaṭṭáf. *Hirundo*.

خفافش, khuffásh. *Vespertilio*.

خفش, khafash.

خل, khall. *Acetum*.

خلنج, khalanj. *Erica arborea*.

خلاف, khiláf. *Salix aegyptiaca*.

خلد, khuld. *Talpa europea*.

خلر, khullar. *Pisum*.

خلباني, khalbány. *Galbanum*.

خمير, khamyr. *Fermentum*.

خمر, khamr. *Vinum*.

خمان, khamán. *Sambucus nigra et Ebulus*.

خماهان, khamáhán. *Santalum*.

خهم, khamkham.

خندريل, khondrylla. *Chondrilla juncea*.

خندروس, khandarús. *Triticum romanum*.

خنثي, khantha. *Ornithogalum stachiodes*.

خنفسا, khunfasá. *Scarabaeus*.

خنزير, khinzyr. *Sus Scrofa*.

خولجان, khawlanján. *Alpinia Galanga*.

خوخ, khawkh. *Amygdalus persica*.

خولان, khawlán. *Succus lycii*.

خونسيا, khunsyá washán. *Sanguis Draconis*.

خزرزهرة, kharzehrah. *Nerium Oleander*.

خوص, khawṣ. *Folia palmarum*.

خيار, khyár. *Cucumis anguinus*.

- جند، khyár janbar. *Cas* دج، dajj. *Tetrao Perdrix*.
sia fistula. دجر، dajr. *Phaseolus*.
 خیری، khyry. *Cheiranthus* دج الامیر، dajj el-emyr. *Amar-*
Cheiri. anthus.
 خیربوا، khyrbawá. دخن، dakhn. *Holcus Dochna*.
 خیسفوج، khysfúj. *Semina gos-* *Sorghum vulgare*.
sypii herbacei. دخان، dukhán. *Fuligo*.
 خیزران، khyzurán. *Myrtus syl-* درخ، darkhasysá. *Hyoscia-*
vestris. Ruscus aculeatus. mus.
 دار صوص، dár çuç. *Cinamomi* درداری، dardár. *Ulmus campes-*
species. tris.
 دار صینی، dán çyny. *Laurus Ci-* درونیج، darúnaj. *Doronicum scor-*
namomum. pioides.
 دار شیشعان، dár shysh'án. *As-* دردی، durdy. *Fæx*.
palathus. Cytisus laniger. دراقی، daráqy. *Fructus amyg-*
 دار فلفل، dár fulful. *Piper* *dali persicae*.
longum. دراقیل، daráqyl. *Eryngii species*.
 دار کیسه، dár kysah. *Macer*. درامج، darásaj.
 دار الوحید، dár el-wahyd. *Cha-* دریاس، diryás. *Thapsia Ascle-*
maeleon. pium.
 دازی، dázy. *Hypericum?* دراج، durráj. *Tetrao francoli-*
 دازی رومی، dázy rúmy. *Hype-* nus.
ricum. دروقنیون، dorúqnyún. *Convol-*
 دانج ابرونج، dánij abrúnaj. *Piper* *vulus Cneorum*.
album. درویطارس، drúbatáris. *Polypo-*
 دبق، dibq. *Viscum. Loranthus* *dium Dryopteris*.
europæus. دستبونه، distabúnyah.
 دبدایر، dybdáyr. *Melonis parvae species*.
 دبس، dibus. *Defrutum*. دشیش، dashysh. *Idem et fari-*
 دبا، dubbá. *Cucurbita Pepo*. *na crassior*.
 دبل، dabl. *Polypodium Dry-* دمقلا، da'oqylá. *Orobanche ca-*
opteris. *ryophyllea*.
 دبب، dibáb. *Mentha sylvestris*. دغلی، difla. *Nerium Oleander*.
 دب، dubb. *Ursus Arctos*. دقاق الکند، daqáq el-kundur.
 دجاج، dajáj. *Gallina*. *Farina thuris*.

دلاع, dull. *Melo indicus*.
دلب, dulb. *Platanus orientalis*.

دلبوث, dilbúth. *Gladiolus Byzanthinus*.

دلدع, daldúa'. *Cucumeris species*.

دليك, dalyk. *Fructus rosarum*.
دلينس, dalynus. *Mytilus edulis*.

دلق, dalaq. *Mustela foina*.

دلفين, dalfyn. *Delphinus*.

دم, damm. *Sanguis*.

دم الاخوين, damm el-aḵhwyn.

Sanguis Dracenis. Dracaena Draco.

دماغ, dimágh. *Cerebrum*.

دمادم, damádim.

دميا, damyá. *Sepia officinalis*.

دند, dend. *Croton Tiglium*.

دنقة, danqah. *Lolium temulentum*.

دهن الازخر, duhn al-izḵhir.

Oleum schoenanthi.

دهن الاقحوان, duhn el-uqḥuwán.

Oleum parthenii.

دهن الاس, duhn el-ás. *Oleum myrti*.

دهن المرزخوش, duhn el-marzan-
ḵhúsh. *Oleum majoranae*.

دهن البازرج, duhn el-bázarúj.

Oleum ocimi.

دهن القيصوم, duhn el-qayṣúm.

Oleum abrotani.

دهن الشبث, duhn el-shibit.

Oleum anethi.

دهن السوسن, duhn el-súsan.

Oleum lilii.

دهن النرجس, dúhn el-narjis.

Oleum narcissi.

دهن الحمام, duhn el-ḥamám.

Oleum schoenanthi veri.

دهن الزعفران, duhn el-za'frán.

Oleum croci.

دهن الحنا, duhn el-ḥinná. *Oleum cypri*.

دهن الايرسا, duhn el-yrisá. *Oleum irinum*.

دهن عصير العنب, duhn'aṣyr el-'i-
nab. *Defruti oleum*.

دهن الدارصيني, duhn el-dár
ṣyny. *Oleum cinnamominum*.

دهن الناردین, duhn el-nárdyn.

Oleum nardinum.

دهن الحلبة, duhn el-ḥulbah. *Oleum foeni graeci*.

دهن السذاب, duhn el-sazáb. *Oleum rutae*.

دهن النسرین, duhn el-nisryn.

Oleum rosae caninae.

دهن البابونج, duhn elbábúnaj.

Oleum chamomillae.

دهن السفرجل, duhn el-safarjal.

Oleum cydoniorum.

دهن زهرة الكرم, duhn zebraḥ
elkarm. *Oleum florum vitis*.

دهن الكفري, duhn el-kuffary.

Oleum spathae palmarum.

دهن الورد, duhn el-ward. *Oleum rosarum*.

- دهن البنفسج, duhn el-banafsaj. *Oleum violarum.*
 دهن النيلوفر, duhn el-nylawfar. *Oleum nymphaeae.*
 دهن فقاخ الحلاف, duhn fuqqāḥ el-khilāf. *Oleum florum salicis.*
 دهن الخيري, duhn el-khayri. *Oleum cheiri.*
 دهن الزبيق, duhn el-zambap. *Oleum zambac.*
 دهن الحسك, duhn el-ḥasak. *Oleum tribuli.*
 دهن القندول, duhn el-qandūl. *Oleum florum cytisi lunigeri.*
 دهن القرع, duhn el-qara'. *Oleum cucurbitae.*
 دهن الاملاج, duhn el-amlaj. *Oleum myrobalanum.*
 دهن الاجر, duhn el-ajarr. *Oleum laterum.*
 دهن الغار, duhn el-ghār. *Oleum laurinum.*
 دهن المصطكي, duhn el-maṣṭaky. *Oleum mastichinum.*
 دهن شجر المصطكي, duhn shajar el-maṣṭaky. *Oleum lentiscinum.*
 دهن الخروع, duhn el-khirwa'. *Oleum ricini.*
 دهن اللوز المر, duhn el-lawz el-murr. *Oleum amygdalarum amararum.*
 دهن اللوز الحلو, duhn el-lawz el-ḥulw. *Oleum amygdalarum dulcium.*
 دهن الجوز, duhn el-jawz. *Oleum nucis juglandis.*
 دهن الخوخ, duhn el-khawḵh. *Oleum amygdali persicae.*
 دهن النوي المشمش, duhn el-na-wa el-mishmish. *Oleum nucleorum pruni armeniacaе.*
 دهن النرجيل, duhn el-narjyl. *Oleum coci nuciferae.*
 دهن البان, duhn el-bān. *Oleum glandis ungentariae.*
 دهن البزر, duhn el-bizr. *Oleum amurcae.*
 دهن الفستق, duhn el-fistuq. *Oleum pistaciae.*
 دهن البندق, duhn el-bunduq. *Oleum nucis avellanae.*
 دهن البطم, duhn el-butm. *Oleum terebinthinae.*
 دهن البنج, duhn el-banj. *Oleum hyosciami.*
 دهن الفجل, duhn el-fujl. *Oleum raphani.*
 دهن القرطم, duhn el-qurṭum. *Oleum carthami tinctorii.*
 دهن الانجرة, duhn el-anjarah. *Oleum seminum urticae.*
 دهن الشونيز, duhn el-shūnyz. *Oleum nigellae sativae.*
 دهن الخردل, duhn el-khardal. *Oleum sinapis.*
 دهن بزر الحرمل, duhn bizr el-ḥarmal. *Oleum sem. ratae*

- دهن الزقوم, duhn el-zaqqúm. *Oleum Zakkum.*
 دهن الاترج, duhn el-utruj. *Oleum citri.*
 دهن الكاذي, duhn el-kázy. *Oleum pandani odoratissimi.*
 دهن القثا الحمار, duhn el-kiththá el-himár. *Oleum momordicae elaterii.*
 دهن الدفلى, duhn el-difla. *Oleum nerii oleandri.*
 دهن الشهدانج, duhn el-shahdá-naj. *Oleum cannabinum.*
 دهن الضرو, duhn el-zarw. *Oleum pistaciae terebinth.*
 دهن الخشاش, duhn el-khash khásh. *Oleum papaveris.*
 دهن الحنظل, duhn el-hanzal. *Oleum colocynthidis.*
 دهن البيض, duhn el-bayz. *Oleum ovorum.*
 دهن القمح, duhn el-qamḥ. *Oleum tritici.*
 دهن الحمص, duhn elḥimmaṣ. *Oleum cicerum.*
 دهن الشيلم, duhn el-shaylam. *Oleum lolii perennis.*
 دهن الانسنين, duhn el-afsantyn. *Oleum absynthii.*
 دهن القسط السذج, duhn el-qusṭ el-sazij. *Oleum costi.*
 دهن العاقرقرا, duhn el-'áqir qarḥa. *Oleum pyrethri.*
 دهن الحبة, duhn el-ḥayah. *Oleum serpentis.*
- دهن العقرب, duhn el-'aqrah. *Oleum scor pionis.*
 دهن الجبل, duhn el-jull. *Oleum rosarum.*
 دهن الحبل, duhn el-ḥall. *Oleum sesami.*
 دهن العسلي, duhn el-'asaly. *Oleum mellis.*
 دهست, dahmast. *Baccae lauri.*
 دهنج, dahnaj. *Malachites.*
 دوم, dúm. *Borassus flabelliformis.*
 دون, dún. *Cinamomi species.*
 دوايا اغريا, dawáyá aghryá.
 دوسر, dawsar. *Aegilops ovata.*
 دوقس, dawqus. *Athamanta cretensis.*
 دود القرمز, dúd el-qirmiz. *Coccus ilicis.*
 دود البقل, dúd el-baql. *Papilio brassicae.*
 دود الصباغين, dúd el-ṣabághyn. *Vermis tinctorum.*
 دود الزبل, dúd el-ḥibl. *Scarabaeus fimetarius.*
 دود الحرير, dúd elharyr. *Bombyx mori.*
 دود خبث الصنوبر, dúd khabath el-ṣanawbar. *Dermestes typographus.*
 دودام, duwádim.
 دوغ, dúgh. *Lac debutyratum.*
 دوقس, dawquṣ. *Bulbus.*
 دوا الحبة, dawá liḥyah. *Gentiana lutea.*

- دوشاب، dúsháb. *Vinum e dac-* ذنب العقرب، zanab el-'aqarab.
tylis paratum. *Scorpioides. Scorpyrurum*
دوس، dúç. *Aqua martialis.* stellatum.
دوفى، dúfan. *Aqua martialis.* ذنب السبع، zanab el-sabu'a. *Cir-*
دوقو، dawqú. *Daucus.* sium. *Carduus tenuiflorus.*
درحوط، durhút. *Gladiolus By-* ذنب القط، zanab el-qitt. *Chry-*
zantinus. socoma *Linosyris.*
دويوچ، dawyzaj. *Delphinium* ذنب الحروف، zanab el-kharúf.
Staphisagria. *Capparis spinosa.*
ديودار، dywdár. *Pinus indica.* ذنب، zanab. *Cauda.*
Juniperus Sabina. ذهب، zahab. *Aurum.*
ديس، days. *Juncus.* ذو ثلث حبات، zú thalath ħab-
ديفرغس، dyfrúghes. *Dyphry-* bát. *Mespilus.*
ges. ذو الفورقة، zú alf warqah.
ديبساقس، dybsáqus. *Dypsacus* *Myriophyllum.*
sylvestris. ذو ثلث شوكات، zú thalath shawkát. *Spina arabica?*
دياقود، dyáqúd. shawkát. *Spina arabica?*
دينارويه، dynárwyah. ذو ثلث ورقات، zú thalath warqát.
ديكبرديك، dykbardyk. ذو ثلث الوان، zú thalath elwán.
ذافنى، záfny. *Ruscus Hypo-* *Triphyllum.*
phyllum. ذو خمسة اصابع، zú ħamsah aṣá-
ذافنيويداس، záfnywydás. *Daph-* b'i. *Vitex agnus castus.*
ne alpina. ذو خمسة اجنحة، zú ħamsah ajna-
ذبل، zibl. *Pellis testudinis.* ħah. *Quinquefolium.*
ذباب، zubáb. *Musca.* ذو مائة شوكة، zú miyah shawkah.
ذراييج، zaráryj. *Meloe vesica-* *Eryngium.*
torius. ذيب،zyb. *Canis Lupus.*
ذرة، zurrah. *Holcus Durra.* راسخه، rásakhah. *Aes ustum.*
ذرق، zuraq. *Trigonella ela-* راسن، rásan. *Inula Helenium.*
tior. راروند، ráwand. *Rheum palma-*
ذرق الطير، zaraq el-ṭayr. *Meli-* tum.
lotus caeruleus. رازيانج، rázyánaj. *Anethum Foe-*
ذفرا، zafrá. *Ruta sylvestris?* nicuhim.
ذنب الخيل، zanab el-ḵha رازيانج رومي، rázyánaj rúmy. *Pim-*
Equisetum fluviatile. pinella *Anisum.*

- راتينج، rátynaj. *Resina pini*.
 رانج، rániij. *Cocos nucifera*.
 راطيني، rátyny. *Resinae*.
 رازقي، rázaqy. *Lilium album*.
 ريثا، rabythá. *Eduii species*.
 راسح، rásiḥ. *Bdellium recens*.
 ربل، rabal.
 ربزق، rabzaq. *Solanum nig-
rum*.
 رته، rattah. *Avellana indica*.
 رتم، rutam. *Spartium junceum*.
 رتيلا، rutaylá. *Phalangium*.
 رجل الغراب، rajil el-ghoráb. *Plantago coronopus*.
 رجل الجراد، rajil el-jarád.
 رجل الارنب، rajil el-arnab. *Tri-
folium arvense*.
 رجل الحمامة، rajil el-ḥamámah. *Anchusa tinctoria*.
 رجل الفروج، rajil el-furúj. *Sal-
sola fruticosa*.
 رجل الدجاجة، rajil el-dajájah. *Matricaria Chamomilla*.
 رجل العلس، rajil el-'alus. *Sal-
sola fruticosa*.
 رجل الزاغ، rajil el-zágh. *Plan-
tago coronopus*.
 رجل العقراب، rajil el-'aqráb. *Plantago coronopus*.
 رجلة، rijlah. *Portulaca ole-
racea*.
 رخمة، raḥmah. *Pelecanus*
Onocrotalus ?
 رجنين، rajany. *Serum lactis*.
 رجينة، rajynah. *Resina*.
 رخام، ruḥám. *Marmor*.
 رزاقى، razáqy. *Oleum lilii*.
 رشاد، rashád. *Sisymbrium Nas-
turtium*.
 رشبية، rashabyah. *Resina*.
 رصاص، raṣāṣ. *Plumbum*.
 رطب، raṭab. *Dactylus. Phoenix*
dactylifera.
 رطبة، raṭbah. *Medicago sa-
tiva recens*.
 رعي الابل، ry'a el-ayal. *Pastina-
ca sativa*.
 رعي الحمام، ry'a el-ḥamám. *Ver-
bena officinalis*.
 رعاد، ri'ád. *Raja Torpedo*.
 رعبث، r'ibath. *Flores granati*.
 رعيادىلا، r'ayyádyá. *Pastinaca*
sativa.
 رعيدا، r'aydá. *Lolium temulen-
tum* ?
 رغوة القمر، raghwah el-qamr. *Spuma lunae*.
 رغوة الحمامين، raghwah el-ḥajjá-
myn. *Spongia maris*.
 رغوة الملح، raghwah el-melḥ. *Spuma salis*.
 رقي، raqq. *Trionix aegyptiacus*.
 رقاس، raqqás.
 رنعا، raq'á. *Polypodium vulgare*.
 رنعا، raq'á. *Sambucus Ebulus*.
 رقيب الشمس، raqyb el-shems. *Heliotropium europeum*.
 رقعة، ruq'ah.
 رومان، rummán. *Punica Gra-
natum*.

رمان السعال, rummán el-s'aál.	زبيب الجبل, zabyb el-jebel. <i>Delphinium Staphisagria.</i>
<i>Papaver Rhoeas.</i>	
رمان الانهار, rummán el-anhár.	زبد البحر, zabad el-baḥr. <i>Spuma maris. Alcyonion.</i>
• <i>Hyperici species.</i>	
رماد, ramád. <i>Cinis.</i>	زبد البحيرة, zabad el-baḥyrah. <i>Adarces.</i>
رمل, raml. <i>Arena.</i>	
رمت, rimth.	زبد القمر, zabad el-qamr. <i>Selenites.</i>
رمرم, ramrám. <i>Carthamus sylvestris.</i>	زبد البورق, zabad el-búraq. <i>Nitri spuma.</i>
رند, rand. <i>Laurus nobilis.</i>	زبد, zubd. <i>Butyrum.</i>
رهش, rahsh. <i>Semina sesami.</i>	زباد, zubbád. <i>Vivera Zibetha.</i>
روزا روزيا, rúzú rúzyá. <i>Sedum Rhodiola.</i>	زبرجد, zabarjad. <i>Smaragdus. Chrysolith.</i>
روبيان, rúbyán. <i>Piscis species.</i>	زبل, zibl. <i>Stercus.</i>
رنتان, rubtán. <i>Piscis species.</i>	زجاج, zajáj. <i>Vitrum.</i>
رروس, rowús. <i>Capita.</i>	زحمول, zahmúl. <i>Cuscuta Epithymum.</i>
رواس, riwás. <i>Eruca aquatica.</i>	زداور, zadáwar. <i>Amomum Zedoaria.</i>
روسختج, rúsakhtaj. <i>Aes ustum.</i>	زرنباد, zerumbád. <i>Amomum Zerumbeth.</i>
رباس, rybás. <i>Rheum Ribes.</i>	زرنب, zarnab. <i>Atriplex odorata?</i>
رية, ryah. <i>Pulmo.</i>	
رية البحر, ryah el-baḥr. <i>Medusa.</i>	
ريحان سليمان, ryḥán Solaymán.	
<i>Ocimum Basilicum.</i>	
ريحان الكافور, ryḥán el-káfúr.	
<i>Laurus Camphora.</i>	زراوند, ziráwand. <i>Aristolochia rotunda.</i>
ريحان الملك, ryḥán el-melik. <i>Ocimum minimum.</i>	زرنيخ, zarnykh. <i>Arsenicum.</i>
ريحاني, ryḥány. <i>Vinum odoratum.</i>	زرشك, zarshak. <i>Berberis vulgaris.</i>
ريش, rysh. <i>Penna.</i>	زرد, zarnak. <i>Succus florum chartami tinctorii.</i>
زاج, záj. <i>Mysi. Vitriolum.</i>	زرينوري, zarynúry. <i>Amaranthus Blitum.</i>
زان, zán.	زريرا, zaryrá.
زاورق, záwuq. <i>Mercurius vivus.</i>	زرجون, zarjún. <i>Vitis vinifera.</i>
زا, zâá. <i>Zea.</i>	
زبيد, zabyb. <i>Uvae passae.</i>	

- زرقوري, zarqúry. *Plantago Coronopus*. زنجار, zanjár. *Aerugo aeris*.
 زرقون, zarqún. *Sandia*. زنجفر, zinjifr. *Cinnabaris*.
 زرافة, zaráfah. *Giraffa Camelopardalis*. زهرة, zehrah. *Baccharis. Gnaphalium sanguineum*.
 زرينغ, zarynaḵh. *Rheum Ribes*. زهر الملح, zahr el-melḥ. *Flores salis*.
 زعفران, z'afarân. *Crocus sativus*. زهر النحاس, zahr el-nuḥás. *Flores aeris*.
 زعفران الحديد, z'afarân el-ḥadyd. *Crocus martis*. زهر الحجر, zahr el-ḥajar. *Lichines*.
 زعرور, z'arúr. *Mespilus Azorolus*. زوفا يابس, zúfá yábis. *Origanum aegyptiacum*.
 زغير, zaghyr. *Myrrha*. زوفا رطب, zúfá raṭb. *Oesypum*.
 زفت, zift. *Pix*. زوفرا, zúfará. *Echinophoru tenuifolia* ?
 زفت السفن, zift el-sufun. *Pix navalis*. زوان, ziwán. *Lolium*.
 زفيرف, zúfyraf. *Uvae*. زيتون, zaytún. *Olea europea*.
 زقوم, zaqqúm. زقوم الآخر, zaqqúm el-aḵḥar. زيت, zayt. *Oleum olivarum*.
 زفشته, zufashtah. زيبار, zybar. *Amurca olei*.
 زلم, zalam. زيبق, zybaq. *Hydrargyrum*.
 زلايه, zalábyeh. زيد, zyd. *Cicada*.
 زلال, zalál. *Panici species*. زيتون الكلبة, zaytún el-kulbah. *Olea sylvestris*.
 زماج, zamaj. *Fulco Haliaetus*. زيت السودان, zayt el-súdán.
 زمرد, zamurrud. *Smaragdus*. زيت الزكاني, zayt el-zakány. *Oleum ex immaturis olivis paratum*.
 زمارة الراعي, zammárah el-r'ay. *Alisma Plantago*. زيت الارض, zayt el-arṣ. *Mezereum*.
 زنجبيل, zanjabyl. *Amomum Zingiber*. زيتون الحبش, zaytún el-ḥabash.
 زنجبيل الكلاب, zanjabyl el-kiláb. زيزفون, zyzafún. *Sorbus* ?
 زنجبيل الشامي, zanjabyl el-shámy. *Inula Helenium*. زيز, zyz. *Bulbus esculentus*.
 زنجبيل العجم, zanjabyl el-'ajam. *Spina Cameli*. سابول, sábul. *Species siliquae dulcis*.
 زنبق, zambaq. *Oleum Sambac*. ساذج, sázaḡ. *Malabathrum*.
 زنبق, zambaq. *Oleum Sambac*. *Laurus Malabathrum*.
 زنيا, zanyá. *Oleris species*.

- ساج, sáj. *Tectona grandis*.
 ساروران, sárúrán.
 سلامندرا, salámandrá. *Lacerta*
 • *Salamandra*.
 سام ابرص, sám m ubraç. *Gecko*
Ascalabotes. Merr.
 سابقه, sábiqah. *Asplenium Ruta*
 • *muraria*.
 سابيزج, sábyzaj. *Fructus atro-*
pae mandragorae.
 سابيزك, sábyzak. *Fructus atro-*
pae mandragorae.
 سالو, sálú. *Equisetum*.
 سبستان, sibistán. *Fructus cor-*
diae myxae.
 سبج, sabaj.
 سبع الارض, sabu'a el-arç. *Asple-*
nium Ruta muraria.
 سبع الكتان, sabu'a el-kattán.
Cuscuta Epithymum.
 سبع الصغيرا, sabu'a el-çaghyrá.
Cuscuta Epithymum.
 سبوقه, sabúqah. *Sambucus ni-*
gra.
 سبجلاط, sijlât. *Jasminum*.
 سحا, sihá.
 سحير, sahyr.
 سخرة, saḡharah. *Vitriolum vi-*
ride.
 سد رونق, sidr wa nabq. *Zizy-*
phus Lotus.
 سذاب, sazáb. *Ruta grave-*
olens.
 سر هس, sarḡhas. *Ferula Tingi-*
tana ?
- سرخص, sarḡhas. *Aspidium*
Filix mas.
 سرو, sarw. *Cupressus semper-*
virens.
 سرفسانه, sárfasáneh. •
 سرغيب, saraghyb. *Suffitus*
Berbergrum.
 سرعنت, sar'ant. *Suffitus Ber-*
berorum.
 سر عند, sar'and. *Suffitus Ber-*
berorum.
 سرطان النهرى, saraṭán el-nahry.
Cancer fluviatilis.
 سردوله, sardúlah. *Fructus po-*
puli nigrae.
 سرطان بحري, saraṭán baḡry.
Cancer marinus.
 سرساد, sirsád. *Vitex Agnus*
castus.
 سرمق, sarmaq. *Atriplex hor-*
tensis.
 سرمج, sarmaj. *Atriplex hor-*
tensis.
 سرة الارض, surrah el-arç. *Coty-*
ledon Umbilicus.
 سرمسا, sarmasá. *Myrrhis odo-*
rata.
 سراج القطرب, siráj el-quṭrub.
Lucerna daemonis.
 سراويل الظلول, saráwyl el-ṣalúl.
Linaria Elatine.
 سيسالى, sysály. *Seseli tortuo-*
ria officinalis.
 مطرونين, strútyún. *Sapona-*
ria officinalis.

- سطوبى, stúby. *Stoebe, Poterium spinosum.* سكر, sukkar. *Sacharum officinarum.*
- سطرايطوس, strátyoṭes. *Pistia Stratiotes.* سكر العشر, sukkar el-'ushar. *Gallatropis gigantea.*
- سطاخيس, stákhys. *Stachis germanica.* مكبينج, sikbynaj. *Ferula persica.*
- سطاح, saṭáh. مك, sukk. سكيح, sakyḥ. *Lapis gagates.*
- سطركا, sṭiraká. *Styraxis species.* سلا رلا, sullá r'alá. *Polypodium vulgare.*
- سطوال, saṭwál. *Amomum Zerrumbet.* سقى رلا, suqa r'alá. *Polypodium vulgare.*
- سعد, su'ad. *Cyperus rotundus.* سلسسونه, salsasúneh. *Grana arboris.*
- سعوṭ, su'út. *Achillea Ptarmica.* سچسونه, sajasúneh. *Grana arboris.*
- سعدان, s'adán. *Neurada procumbens?* سليخة, salyḵhah. *Laurus Cassia.*
- سعالى, su'álá. *Tussilago Farfara.* سلك, silk. *Beta vulgaris.*
- سفر المسعودى, safr el-inasa'údy. سلك الما, silk el-má. *Potamogeton natans.*
- سقداديكس, sqanádyks. *Scandix australis.* سلك برى, silk barry. *Rumicis species.*
- سفندولبون, sfundúlyún. *Hera-cleum Sphondylium.* سلت, sult. *Tragus.*
- سفرجل, safarjel. *Pyrus Sydonia.* صالح الحية, silḵh el-ḥayah. *Anguim senecta.*
- سقمونيا, sqamonyá. *Convolvulus Scamonia.* سلدانىون, suldányún. سلقفاة, saliḥfáh. *Testudo.*
- سقولوفندريون, sqolofendryún. *Asplenon. Asplenium Ceterach.* سلوى, silwa. *Butyrum.*
- سقولوفندرا, sqolofendrá. *Scolopendra. Aphroditeaculeata.* سلور, silúr. *Silurus.*
- سقولوفندرا, sqolofendrá. *Scolopendra. Aphroditeaculeata.* سلاحة, suláḥah. *Urina hoedorum.*
- سقر بيوداس, sqorbyoydás. *Scorpiurus sulcatus.* سليقون, salyqon. *Sandix.*
- سقىقور, syqanqúr. *Scincus officinalis.* سايط, salyṭ. *Oleum sesami.*
- سلطان الجبل, sultán el-jebel. *Lonicera Perichyomenon.*

- سماق, summáq. *Rhus Coriaria*. سنا, saná. *Cassia Senna*.
 سمسم, simsim. *Sesamum orientale*. سنبل, sanbal. *Valeriana Jatatamansi*.
 سمفوطن بطراون, simfútun baṭ-ráún. *Coris Monspelienensis*. سندروس, sindarús. *Sandarax*.
 سمفوطن اخر, simfútun aḵher. سيدريطس, syderytis. *Stachis recta*.
Symphytum officinale. سيدريطس اخر, syderytis aḵher.
 سمان, samán. *Juncus*. *Poterium Sanguisorba*.
 سماني, sumána. *Tetrao Coturnix*. سنبادج, sunbádaj. *Smyris*.
 سمك, samak. *Piscis*. سنجاب, sunjáb. *Sciurus vulgaris*.
 سمك الصخري, samak el-ṣoḵhary. سنجفر, sinjafr. *Cinnabaris*.
Pisces saxatiles. سنديون, sindyún. *Quercus*.
 سمكة صيدال, samykah ṣaydá. سنديون الارض, sindyún el-arḷ. *Ballota nigra*.
Callionimus Dracunculus ? سنبل الكلب, sunbul el-kalb.
 سمّن, samn. *Butyrum*. *Ulmus*.
 سميلقس, smylaqs. *Taxus baccata*. سهام, schám. *Melonis parvae species*.
 سماقيلي, samáqily. *Rhus Coriaria*. سنور, sinnawr. *Felis Panthera*.
 سمنة, sumanah. *Semina canabasis*. سورنجان, súranjân. *Colchicum autumnale*.
 سمونيون, samúnyún. *Juncus*. سوس, sús. *Glycirrhiza glabra*.
 سمسق, samsaq. *Origanum Majorana*. سورج, súraj. *Lanugo salis*.
 سمسم بري, simsim Barry. سولان, súlán.
 سمسم الحمار, samm el-ḥimár. *Nerium Oleander*. سومر, súmar. *Quercus Ilex*.
 سم الفار, samm el-fár. *Arsenicum album*. سوسن, súsan. *Lilium candidum*.
 سم السمك, samm el-samak. *Menispermum Cocculus*. سوير, sawyr. *Bdellium recens*.
 سمور, sammúr. *Mustela Zibellina*. سوار الهند, siwár el-hind.
 سويقة الحنطة, sawyqah el-ḥinṭah. *Pulmentum tritici, hordei etc.*
 سويقة الشعير, sawyqah el-sha'yr. *Pulmentum tritici, hordei etc.*

سويقة السائر, sawyqah el-sayr.	شاهنجير, sháhnajyr. <i>Species fi-</i>
<i>Pulmentum tritici, hordei etc.</i>	<i>corum.</i>
ميسر, syssir. <i>Mentha sylvestris.</i>	شابانج, shábánaj. <i>Conyza odora.</i>
سيسارون, sysárún. <i>Pastinaca</i>	شاهابانك, sháhábának. <i>Conyza</i>
<i>sativa.</i>	<i>odora.</i>
ميسبان, sysabán. <i>Palmae spe-</i>	شابانك, shábának. <i>Conyza</i>
<i>cies.</i>	<i>odora.</i>
سيبيا, sybya. <i>Sepia officinalis.</i>	شابورقان, shábúrqán. <i>Ferrum</i>
سيف الغراب, sayf el-ghoráb.	<i>naturale.</i>
<i>Gladiolus Byzantinus.</i>	شالسه, shálish. <i>Salvia offici-</i>
سيسمبريون, sysimbryún. <i>Sisym-</i>	<i>nalis.</i>
<i>brium Nasturtium.</i>	شبيت, shibit. <i>Anethum grave-</i>
سيكران, sykrán. <i>Hyosciamus</i>	<i>olens.</i>
<i>albus.</i>	شبرم, shibrim. <i>Euphorbia Pi-</i>
سيكران الحوت, sykrán el-hút.	<i>tyusa.</i>
<i>Verbascum.</i>	شبرم اخر, shibrim akher.
شاهنرج, sháhtarraj. <i>Fumaria</i>	شبه, shabah. <i>Paliurus australis.</i>
<i>officinalis.</i>	شبهان, shabahán. <i>Paliurus au-</i>
شاه صيني, sháh çyny.	<i>stralis.</i>
شاطل, shátíl.	شب, shabb. <i>Alumen.</i>
شاذنج, sházanaj. <i>Lapis hae-</i>	الاسافكة, shabb el-asáfikah.
<i>matites.</i>	<i>Alumen flavum.</i>
شاذنه, sházaneh. <i>Lapis hae-</i>	شبطباط, shabṭabaṭ. <i>Dipsacus</i>
<i>matites.</i>	<i>Fullonum.</i>
شاهور, sháhúr.	شبهان, shubhán. <i>Aurichalcum.</i>
شاهسيفارم, sháhsifaram. <i>Ocimum</i>	شبوط, 'shabbút. <i>Uranoscopus</i>
<i>minimum.</i>	<i>scaber.</i>
شاهلوك, sháhlúk. <i>Pruna alba.</i>	شبوقة, shabúqah. <i>Cucumis.</i>
شاهلوج, sháhlúj. <i>Pruna alba.</i>	شجرة ابي ملك, shajarah Aby
شاهبلوط, sháhbálút. <i>Castanea</i>	<i>Melik.</i>
<i>vesca.</i>	شجرة الطحال, shajarah el-ṭaḥḥál.
شاهدابق, sháhdábaq. <i>Semina</i>	شجرة الخفة, shajarah el-khaffah.
<i>cannabis sativae.</i>	<i>Melia Azederach.</i>
شاهدانج, sháhdánaj. <i>Semina</i>	شجرة الحره, shajarah el-ḥarrah.
<i>cannabis sativae.</i>	<i>Melia Azederach.</i>

- شجرة الله, shajarah allah. *Juniperus Sabina*.
 شجرة الدب, shajarah el-dubb. *Arbutus Unedo*.
 شجرة الحية, shajarah el-hayah. *Cupressus sempervirens*.
 شجرة الدبق, shajarah el-dibq. *Loranthus europeus*.
 شجرة الدم, shajarah el-damm. *Anchusa tinctoria*.
 شجرة الضفادع, shajarah el-zafá-da'. *Ranunculus asiaticus*.
 شجرة الكاب, shajarah el-kalb. *Alyssum*.
 شجرة الطلق, shajarah el-talq. *Melocactus?*
 شجرة الباردة, shajarah el-báridah. *Convolvuli species*.
 شجرة موسى, shajarah músa. *Rubus fruticosus*.
 شجرة النيس, shajarah el-tays. *Hypericum hircinum*.
 شجرة الرستم, shajarah el-rustam. *Aristolochia longa*.
 شجرة الدراغيث, shajarah el-bará-ghyth. *Inula*.
 شجرة التنين, shajarah el-tin-nyn. *Arum Dracunculus*.
 شجرة الخطاطيف, shajarah el-khatátyf. *Chelidonium*.
 شجرة البهام, shajarah el-bahám. *Heliotropium*. [mus.
 شجرة البق, shajarah el-baq. *U-*
 شجرة ابراهيم, shajarah Ibráhyim. *Vitex Agnus castus*.
 شجرة مريم, shajarah maryam. *Matricaria Parthenium*.
 شجرة الكف, shajarah el-kaff. *Digit citrini. Melissa officin-*
alis.
 شجرة البهق, shajarah el-bahaq. *Plumbago europea*.
 شجيمية, shajjymyah. *Linaria*
Elatine.
 شحم, shaḥm. *Adeps*.
 شحرور, shaḥrúr. *Turdus Merula*.
 شحم الارض, shaḥm el-arz. *Fruc-*
tus garcinia mangostanae.
 شحم المرح, shaḥm el-marah. *Althaea ficifolia*.
 شحيرة, shaḥyrah. *شحمة الارض, shaḥmah el-arz.*
Lumbrici.
 شرس, shirs. *Ononis antiquorum*.
 شرب, sharyr. *Marrubium pli-*
catum.
 شربين, sharbyn. *Pinus Cedrus*.
 شري, shara. *Cucumis Colo-*
cynthis.
 شسيرة, shasyrah. *ششرب, shushrunab*.
 شطريه, shaṭryh. *Satureja hor-*
tensis.
 شعير, sha'yr. *Hordeum disti-*
chum.
 شعير الرومي, sha'yr el-rúmy. *Triticum romanum*.
 شعر, sha'r. *Capilli*.
 شعر الارض, sha'r el-arz. *Adi-*
antum Capillus Veneris.

- شوشامير, shúshamyr. *Anomum* شیرنجیر, shyrnajyr.
Granum Paradisi. شیخ الربیع, shyḥ el-raby'.
شوک الدراحی, shawḥ el-daráḥyn *Senecio vulgaris.*
• *Dipsacus sylvestris.* شیخ البحر, shyḥ el-baḥr.
شوک العقوب, shawḥ el-'aḡúb شیران, shyrán. *Stercus vesper-*
Silybum marianum. tilionum.
شوک الدمن, shawḥ el-damn. *Si-* شبیة العجوز, shybah el-'ajúz. *Li-*
lybum marianum. chen arborum. *Usnea* ?
شوک العلك, shawḥ el-'alak. شیان, shyán. *Sanguis dra-*
Acarna gummifera. conis.
شوكة العقرب, shawkah el-'aḡrab. شیر خشك, shyḥ ḵhashak. *Man-*
Solanum cordatum. nae species.
شوكة العربية, shawkah el-'arabi- شیر, shyḥ. *Lac.*
yah. *Cirsium Acarna.* صامریوما, ṣāmīr yawmá. *Heli-*
شوكة يهودية, shawkah yehúdiyah. *otropium europeum.*
Eryngium. صاملي, ṣāḡaly. *Ornithogalum*
شوكة القبطية, shawkah el-qobṭi- umbellatum.
yah. *Mimosa nilotica.* صابون, ṣábún. *Sapo.*
شوكة مصرية, shawkah miṣriyah. صابون القاق, ṣábún el-qáq.
Mimosa nilotica. صاب, ṣáb. *Momordica Elate-*
شوكة الشها, shawkah el-shuhba. rium ?
شوكة منثین, shawkah muntyn. صادة المكسورة, ṣádah el-maksú-
شوكة زرقا, shawkah zarqá. *Eryn-* rah. *Cynarae species.*
gium. صارة, ṣarah. *Arun italicum.*
شوكة بیضا, shawkah bayzú. *Lam.*
Spina alba. صالبيية, ṣálībiyah. *Salvia* — ?
شوكة, shawrah. *Resina arboris* صبر, ṣabr. *Aloe arabica, Soc-*
Isrán. cotrina et vulgaris.
شودنق, shawdáníq. *Accipitris* صبا حبة, ṣabbá habbah. *Daucus*
species. *Carota.*
شیطرچ, shyṭaraj. *Lepidium* صبیب, ṣabyb.
latifolium. صبار, ṣubár. *Tamarindus in-*
شيلم, shaylám. *Lolium perenne.* dica.
شبيبة, shaybah. صباري, ṣubáry. *Tamarindus in-*
شیخ, shyḥ. *Artemisia judaica.* dica.

- صحناء، *çiḥnâh. Pisces prae-*
parati.
 صدف، *çadaf. Conchue.*
 صدف البواسير، *çadaf el-buwâsy.*
 صرغمة الجدي، *çarymah el-jady.*
Lonicera Periclymenum.
 صرع الكلة، *çara el-kalḥ.*
 صرصر، *çarçar. Gryllus.*
 صرفان، *çarfân. Plumbum ni-*
grum.
 صغتر، *ça'tar. Origanum.*
 معد، *ça'ad.*
 صغير الفرس، *çaghyr el-fars.*
Mentha Palegium.
 صفرا، *çafrâ.*
 صفراعون، *çafarâ'ûn. Motacilla*
Troglodytes.
 صفينه، *çafynah. Juniperus Sa-*
bina.
 صغيرا، *çafyrâ.*
 صقر، *çaqr. Falco Nisus.*
 صلبان، *çulbân.*
 صلون، *çalûn.*
 صمغ، *çamagh. Gummi.*
 صمغ البلاط، *çamagh el-balât. Li-*
thocolla.
 صمغ الاجاس، *çamagh el-ijâs.*
Gummi pruni.
 صمغ السماق، *çamagh el-summiâq.*
Gummi rhois coriariae.
 صمغ الداميتا، *çamagh el-dâmythâ.*
 صمغ اللوزة، *çamagh el-lawzah.*
Gummi amygdali.
 صمغ السذاب، *çamagh el-sazâb.*
Gummi rutae.
- صمغ الخطمي، *çamagh el-khuṭmy.*
Gummi althaeae siccifoliae.
 صمغ الزيتون، *çamagh el-zaytûn.*
Gummi oleae europeae.
 صمغ السرو، *çamagh el-sarw.*
Gummi cupressi.
 صنوبر، *çanawbar. Strobili pini.*
 صندل، *çandal. Santalum.*
 صن الوبر، *çann el-wabr.*
 صنبر، *çanyr.*
 صنار، *çinâr. Platanus orienta-*
lis.
 صوف، *çûf. Lana.*
 صوف البحر، *çûf el-baḥr. Pinna*
nobilis.
 صوطله، *çûṭalah. Rapi species.*
 صيدلاني، *çydlâny. Optima spe-*
cies siliquae dulcis.
 صير، *çyr. Sparus Maena.*
 ضار، *zûr. Platanus orientalis.*
 ضان، *zân. Ovis.*
 ضال، *zâl. Zizyphus Lotus.*
 ضبع عرجا، *zaba' 'arjâ. Hyæna.*
 صجاج، *zijâj.*
 ضجع، *zaja'.*
 زاداه، *Amaranthus*
Blitum.
 ضرو، *zarw. Resina pistaciae*
terebinthinae.
 ضرب، *zirb. Hystrix cristata.*
 ضريع، *zary'.*
 ضروع الكلبة، *zarû' el-kalbah.*
Zakkum.
 ضرس العجوز، *zars el-'ajûz.*
 صر، *zira'. Ubera.*

ضم، <i>zirm.</i> <i>Lavendula Stoechas.</i>	طراغيون، <i>trághyún.</i> <i>Hypericum hircinum.</i>
صفابيس، <i>zaghábys.</i> <i>Cucumeris species.</i>	طراغس، <i>trághos.</i> <i>Ephedra distachya.</i>
صفادع، <i>zafáda'.</i> <i>Ranae.</i>	طراسنه، <i>trásineh.</i> •
صفائر الجن، <i>zafáyr.</i> <i>el-junn.</i>	طرخون، <i>tarkhún.</i> <i>Artemisia Dracunculus.</i>
• صومر، <i>zawmar.</i> <i>Ocimum Basilicum.</i>	طراثيث، <i>taráthyth.</i>
صومران، <i>zawmarán.</i> <i>Menthae species.</i>	طريقلن، <i>tryfilon.</i> <i>Psoralea bituminosa.</i>
طالسفر، <i>talísfar.</i> <i>Macer Venterum.</i> <i>Myristica moschata.</i>	طرسيوخ، <i>trasyúh.</i> <i>Mullus barbatus.</i>
طاووس، <i>táwús.</i> <i>Pavo cristatus.</i>	طراغلوديس، <i>trághlúdis.</i> <i>Motacilla Troglodytes.</i>
طالقون، <i>tálqún.</i> <i>Talcum.</i>	طريخومانس، <i>trykhománes.</i> <i>Asplenium Trichomanes.</i>
طارطقة، <i>táratqah.</i> <i>Euphorbia nereifolia.</i>	طراغوبوغون، <i>trághoboghon.</i> <i>Tragopogon crocifolium.</i>
طباشير، <i>tabáshyr.</i> <i>Sacharum bambusae arundinaceae.</i>	طريفوليون، <i>trifolyún.</i> <i>Plumbago europea.</i> •
طباق، <i>ṭubáq.</i> <i>Major. Inula viscosa.</i>	طريفون، <i>ṭrifún.</i> <i>Columbae.</i>
طباق، <i>ṭubáq.</i> <i>Minor. Inula saxatilis.</i>	طرخشقوق، <i>ṭarakhshaqúq.</i> <i>Leontodon Taraxacum.</i>
طبرزد، <i>ṭabarzad.</i> <i>Sacharum album.</i>	طربخ، <i>ṭarykh.</i> <i>Helix Pomatia.</i>
طبرج، <i>ṭabarj.</i> <i>Formicae parvae species.</i>	طرنشول، <i>ṭurnushúl.</i> <i>Heliotropium europeum.</i>
طحلب، <i>ṭaḥlab.</i> <i>Lenticula stagnina.</i>	طغلي، <i>ṭaḡly.</i> <i>Folia borassi.</i>
طحال، <i>ṭiḥál.</i> <i>Splen.</i>	طلق، <i>ṭalq.</i> <i>Talcum.</i>
طخش، <i>ṭakhash.</i>	طلع، <i>ṭala'.</i> <i>Flores palmarum.</i>
طخسكون، <i>ṭokhsikún.</i> <i>Venernum sagittarum.</i>	طلم، <i>ṭalh.</i> <i>Musa paradisiaca.</i>
طونا، <i>ṭarfá.</i> <i>Tamarix gallica.</i>	طلسا، <i>ṭalsa.</i> <i>Mytilus edulis.</i>
	طمطم، <i>ṭimṭim.</i> <i>Rhus Coriaria.</i>
	طمرأ، <i>ṭamrá.</i> <i>Ricinus communis.</i>

طهف, ṭahf. <i>Milium</i> .	طين نيسابورى, ṭyn Nysábúry.
طوقريوس, ṭúqryús. <i>Teucrium flurum</i> .	Terra Nisaburica.
طواره, ṭúarah. <i>Aconitum Thora?</i>	ظفرة, zafarah. <i>Hieracium Pilosella?</i>
طور, ṭúr. • <i>Lapis Haematites</i> .	ظفر وطورا, zufr wa ṭúrá.
طوط, ṭút. <i>Gossypium herbaceum</i> .	ظفر القطن, zufr el-qitt. <i>Clymenon</i> .
طوله, ṭuwluh. <i>Castanea</i> .	ظفر النسر, zufr el-nisr. <i>Ornithopus compressus</i> .
طلا, ṭila. <i>Succus uvarum inspissatus</i> .	ظفرا, zufrá. <i>Mentha sylvestris</i> .
طيلانيون, ṭyláfyún. <i>Cerinth minor</i> .	ظفيرة العجوز, zafyrah el-'ajúz. <i>Fructus tribuli</i> .
طيهوج, ṭyhúj. <i>Tetrao francolinus</i> .	ظلف, zulf. <i>Ungula</i> .
طيفي, ṭyfa. <i>Typha latifolia</i> .	ظليم, zalym. <i>Struthiocamelus mas</i> .
طبيب العرب, ṭyb el-'arab. <i>Andropogon Schoenanthus</i> .	ظمخ, zimaḵ. <i>Fructus zedoariae</i> .
طيطان, ṭyṭán. <i>Allium sylvestre</i> .	ظيان, ziyán. <i>Clematis Flammula</i> .
طين مختم, ṭyn maḵhtúm. <i>Terra sigillata</i> .	ظاقرقا, 'áqir qarḫá. <i>Anthemis Pyrethrum</i> .
طين مصر, ṭyn Miṣr. <i>Terra Aegyptiaca</i> .	ظشما, 'akir shama'á. <i>Artemisia maritima</i> .
طين ساموس, ṭyn Sámos. <i>Terra Samia</i> .	ظاقول, 'áqúl. <i>Hedysarum Alhagi</i> .
طين جزيرة المصطكي, ṭyn jazyrāh el-miṣṭaky. <i>Terra Chia</i> .	ظج, 'áj. <i>Ebur</i> .
طين قيموليا, ṭyn qymolya. <i>Terra Cimolia</i> .	ظبشران, 'abytherán.
طين الحمر, ṭyn el-ḥurr. <i>Terra Cimolia</i> .	ظبهر, 'abhar. <i>Styrax officinalis</i> .
طين الكرمي, ṭyn el-karmy. <i>Terra ampelitis</i> .	ظنب, 'inab. <i>Physalis Alkekengi</i> .
طين ارمني, ṭyn Armenj. <i>Terra Armeniaca</i> .	ظنم, 'utm. <i>Phyllirea latifolia</i> .
	ظنق, 'athaq.
	ظنرب, 'uthrub. <i>Rumex persicarioides</i> .
	ظجا, 'ajmá.
	ظجب, 'ajab. <i>Indigoferae tinctoriae semina</i> .

عدس, 'adas. <i>Ervum Lens</i> .	عريصان, 'aryçán.
مر عدس, 'adas murr. <i>Sparganium erectum</i> .	عريقصان, 'aryqçán.
عدس نبطي, 'adas nabty.	عريقصانه, 'aryqçanah.
عدس الما, 'adas el-má. <i>Lenticula stagnina</i> .	عرم, 'arm. <i>Sparus Smaris</i> .
عديسة, 'adysali.	عرصف, 'urçuf. <i>Ajuga Chamæpylis</i> .
عذبة, 'ozbáh. <i>Fructus tamaricis</i> .	عرمض, 'urmaz.
عرطونيا, 'arṭunythá. <i>Leontice Leontopetalum</i> .	عرونة, 'arúnah. <i>Raja Torpedo</i> .
عروق الصابغين, 'urúq el-çábaghyn. <i>Chelidonium majus</i> .	عزق, 'uzuq. <i>Folia palmarum</i> .
عرن, 'aran. <i>Lichines equorum</i> .	عسل, 'asal. <i>Mel</i> .
عرق, 'araq. <i>Sudor</i> .	عسل داود, 'usal Dáwúd. <i>Vinum mellis</i> .
عرفصان, 'arfaçán. <i>Mililotus coerulea</i> .	عشر, 'ushar. <i>Asclepias gigantea</i> .
عرعر, 'ar'ar. <i>Juniperus</i> .	عشرق, 'ishriq. <i>Cynanchum nigrum</i> ?
عروق اصفر, 'urúq açfar. <i>Radices chelidonii</i> .	عشام, 'ashám. <i>Platanus orientalis</i> .
عروق احمر, 'urúq aḥmar. <i>Radices rubiae tinctorum</i> .	عشبة السباع, 'ashbah el-sibá'.
عروق ابيض, 'urúq abyaz. <i>Orchis species</i> .	عصا الراعى, 'aça el-ráý. <i>Polygonum</i> .
عرق الشجر, 'araq el-shajar. <i>Resina arborum</i> .	عصفور, 'uçfur. <i>Carthamus tinctorius</i> .
عرق الياويس, 'araq el-yábis. <i>Colophonium</i> .	عصفرة, 'uçfirah. <i>Species cheiranthi</i> .
عرق الكفور, 'arak el-kafúr. <i>Amomum Zerumbeth</i> .	عصب, 'açab. <i>Nerion</i> .
عرم, 'arçam. <i>Solanum Melongena sylvestre</i> .	عصر الدب, 'açr el-dubb. <i>Fructus arbuti unedinis</i> .
عوصم, 'iwçim. <i>Solanum Melongena sylvestre</i> .	عصبة, 'açbah. <i>Convolvuli species</i> .
عروق دار هرم, 'urúq dár haram. <i>Radices lilii candidi</i> .	عصافير وسودانيات, 'asáfyr wa Súdányát. <i>Passeres</i> .
	عضرس, 'azras. <i>Althaea sylvestris</i> ?
	عضاة, 'azáh. <i>Omnis spinis armata arbor</i> .

- عطشان, 'aṭashán. *Dipsacus sylvestris*.
 عطب, 'uṭub. *Gossypium herbaceum*.
 عطارد, 'uṭáryd. *Spica romana*.
 عظام, 'izám. *Ossa*.
 عطاية, 'azáyah. *Zygis tridactyla*.
 عظم, 'izlim. *Indigofera*.
 عفار, 'afár. *Arbutus Unedo*.
 غص, 'afṣ. *Gallae*.
 عقيق, 'aqyq. *Carneola*.
 عقرب, 'aqrab. *Scorpio*.
 عقرب البحري, 'aqrab el-baḥry. *Scorpaena Scrofa*.
 عقربان, 'uqrubán. *Asplenium Ceterach*.
 عقاربوهان, 'aqárbúhán. *Anthemis Pyrethrum*.
 عقركوهن, 'aqarkúhan. *Anthemis Pyrethrum*.
 عقيرة, 'aqyrbah. *Doronicum scorpioides*.
 عنقيد العنب, 'anaqyd el-'inab. *Succus uvarum*.
 عقاب, 'uqáb. *Aquila*.
 عقق, 'aq'aq. *Pica*.
 عكوب, 'aqúb. *Silybum marianum*.
 عكبة, 'akbah. *Colchicum autumnale*.
 عكبر, 'ikbar.
 عكرش, 'ikrish. *Aparine*?
 على, 'aly.
 عليق, 'ullayq. *Rubus fruticosus*.
- عليق الكلب, 'ullayq el-kalb. *Rosa canina*.
 علس, 'alas. *Zea*.
 علك, 'ilk. *Resina*.
 علق, 'alaq. *Hirudo*.
 عليقي, 'alyqy. *Osyris alba*.
 علمق, 'alqam. *Momordica Elaterium*.
 علجان, 'alaján.
 علت, 'alath. *Chondrilla*.
 عنبر, 'ambar. *Ambra*.
 عنبا, 'inabá.
 عنب الثعلب, 'inab el-tha'lab. *Solanum nigrum*.
 عنب الدب, 'inab el-dubb. *Arbutus Uva Ursi*.
 عنب الحية, 'inab el-ḥayah. *Fructus bryoniae dioicae*.
 عنكبوت, 'ankabút. *Aranea*.
 عنصل, 'unṣul. *Scilla maritima*.
 عناب, 'unnáb. *Zizyphus sativus*.
 عنب, 'inab. *Uvae*.
 عندم, 'andam.
 عنجد, 'anjad. *Uvae passae*.
 عنقر, 'unqur. *Origanum Majorana*.
 عنزروت, 'anzarút. *Sarcocolla*.
 عنم, 'anam.
 عنهن, 'ihn. *Lana*.
 عوسج, 'awsaj. *Lycium europeum*.
 عود, 'úd. *Aloëxylon Agallochum*.
 عودريج, 'údryḥ. *Berberis vulgaris radix*.
 عود البرق, 'úd el-barq. *Cytisus laniger*.

عود الحية، 'úd el-haiyah. <i>Ophi-</i>	غالية، ghályah. <i>Medicamentum</i>
<i>oxylum serpentinum.</i>	<i>compositum.</i>
عود الصايب، 'úd el-ṣalyb. <i>Paeo-</i>	غالالوتا، ghálálútá. <i>Nelumbium</i>
<i>nia.</i>	<i>speciosum.</i>
عود الربيع، 'úd el-ryḥ. <i>Paeonia</i>	غاسول، ghásúl. <i>Salsola Kali?</i>
<i>et Chelidonium.</i>	غاسل رومي، ghásúl rúmy. <i>Eu-</i>
عود البسپر، 'úd el-basyr.	<i>phorbia spinosa.</i>
عود الرقة، 'úd el-raqqah. <i>Radix</i>	غافورا، gháfúrá. <i>Adarces.</i>
<i>ferulae assae foetidae.</i>	غhubayrá. <i>Sorbus domes-</i>
عود العطاس، 'úd el-'atás. <i>Gip-</i>	<i>ticu. Smith.</i>
<i>sophyla Struthium.</i>	غبارية، ghabáriyah.
عوسا، 'awsá. <i>Parietaria offic-</i>	غرا، ghará. <i>Amylum.</i>
<i>inalis.</i>	غريرا، gharyrá. <i>Amylum.</i>
عور افسرح، 'awr afsarah. <i>Om-</i>	غرا، ghará. <i>Gluten.</i>
<i>phaces.</i>	غرب، gharab. <i>Salix.</i>
عين وعينية، 'ayniyah, 'ayn. <i>Lo-</i>	غرفد، gharfad. <i>Species lycii.</i>
<i>nicera Periclymenon.</i>	غراز، gharaz. <i>Dipsaci species.</i>
عينون، 'aynún.	غزال، ghazál. <i>Antilope Dorcas.</i>
عيدون الديكة، 'uyún el-dykah.	غسل، ghasl. <i>Althaea sicifolia.</i>
عين الهدهد، 'ayn el-hudhud.	غسلة، ghislah.
<i>Myosotis palustris.</i>	غلقي، ghalqa.
عين ران، 'ayn rán. <i>Mespilus.</i>	غلوكس، ghlawks. <i>Antipathes</i>
عين البقر، 'ayn el-baqr. <i>Pruna.</i>	<i>foeniculaceum.</i>
عيثم، 'aytham. <i>Platanus orien-</i>	غلخين، ghlykhin. <i>Pulegium.</i>
<i>talis.</i>	غلوقيريزا، ghliqyryzá. <i>Glycir-</i>
عيدا، 'aydá.	<i>rhiza glabra.</i>
غافت، gháfit. <i>Agrimonia Eupa-</i>	غملو، ghamlaw. <i>Spongia marina.</i>
<i>torium.</i>	غملول، ghumlúl.
غار، ghár. <i>Laurus nobilis.</i>	غنغيلي، ghonghyla. <i>Rapum.</i>
غاليون، ghályún. <i>Galium verum.</i>	غوشنة، ghawshanah. <i>Fungus.</i>
غاليبسيس، ghálybsys. <i>Lamium</i>	<i>Cyathus Olla?</i>
<i>purpureum.</i>	غول، ghawl. <i>Syrupus acerbis.</i>
غاريقون، gháryqún. <i>Agaricum.</i>	غلاصم، ghaláṣim. <i>Larynx.</i>
غارانيون، ghárápyún. <i>Geranium</i>	غيم، ghaym. <i>Spongia marina.</i>
<i>tuberosum.</i>	غمام، ghimám. <i>Spongia marina.</i>

فاندا، fáwunyá. <i>Paeonia officinalis</i> .	فالوءوس، falú'ús. <i>Ardea Ciconia</i> .
فاس، fáṣ. <i>Panici species</i> .	فارسطاريون، fāristáryún. <i>Verbena officinalis</i> .
فاظ، fáz.	
فاغرة، fāghirah. <i>Xanthoxylon Avicennae</i> .	فانوخيا، fārnúḵhyá. <i>Polycarpon tetraphyllum</i> .
فالريس، fálarys. <i>Phalaris canariensis</i> .	فاخته، fákhitah. <i>Columba Palumbus</i> .
فار، fār. <i>Mus</i> .	فتايل الرهبان، fatáyl el-rahabán.
فارة البيش، fārah el-bysh.	فتيت، fatyt. <i>Panis tritus</i> .
فاشرا، fāshirá. <i>Bryonia dioica</i> .	فجل، fujl. <i>Raphanus sativus</i> .
فاشرشين، fāshirshyn. <i>Bryonia alba</i> .	فريدون، furbyún. <i>Euphorbia officinarum</i> .
فالنجيس، fálankhys. <i>Anthericum ramosum</i> .	فراسيون، frásyún. <i>Marrubium plicatum</i> .
فاحسة، fáḥisah. <i>Castoreum</i> .	فروقوديلاون، frúqúdy láún. <i>Eryngium maritimum</i> .
فاغية، fāghyah. <i>Flores lawsoniae inermis</i> .	فرنجمشك، faranjmushk. <i>Ocimum pilosum</i> .
فالس اليوناني، fális el-yúnány. <i>Fabae graecae</i> .	فرودوماهان، frúdúmáhán.
فالس القبطي، fális el-qobṭy. <i>Fabae aegyptiacae</i> .	فراخ الحمام، firáḵh el-ḥamam. <i>Pulli columbarum</i> .
فاشول الروحي، fāshúl el-rúḥy. <i>Euphorbia spinosa</i> .	فرصاد، firṣád. <i>Morus</i> .
فافير، fáfyr. <i>Cyperus Papyrus</i> .	فرفح، farfaḥ. <i>Portulaca oleracea</i> .
فانيد الصخري، fányd el-ṣaḵhary. <i>Sacharum Penidium</i> .	فرفحين، farfaḥyn. <i>Portulaca oleracea</i> .
فاناقس اسقليديوس، fánáqis asqlebyús. <i>Echinophora tenuifolia</i> .	فريدس، farydas. <i>Piscis species</i> .
فاناقس خيرنديون، fánáqis ḵhyronyon. <i>Hypericum origanifolium</i> ?	فريفير، firfyr.
فاناقس ايراقليون، fánáqis ayráḵlyon. <i>Ferula Opopanax</i> .	فستق، fustuq. <i>Pistacia vera</i> .
	فشماط، fishmát. <i>Panis biscoctus</i> .
	فشينغ، fashygh. <i>Smilax aspera</i> .
	فشفشاح، fiṣṣiḥah. <i>Medicago sativa</i> .

فضة, fizah. <i>Argentum.</i>	فخخيون, fykhyún. <i>Tussilago</i>
فضة, fizah. <i>Otanthus mari-</i>	Farfara.
timus.	فك, funk. <i>Mustela Foina.</i>
فطر, fuṭur. <i>Fungi.</i>	فو, fúw. <i>Valeriana Dioscori-</i>
فتح, faqa'. <i>Fungi species.</i>	dis.
فقا, fuqqá'. <i>Zythum.</i>	فوة, fuwwat. <i>Rubia Tincto-</i>
فقرص, faqqúç. <i>Cucumis sati-</i>	rum.
vus.	فولاذ, fúláz. <i>Chalybs.</i>
فقد, faqd. <i>Semina viticis agni</i>	فوفل, fawfal. <i>Areca Catechu.</i>
casti.	فودنج, fúdanj. <i>Mentha.</i>
فقا, fuqqáh. <i>Flores spicae-</i>	فيروزج, fyrúzaj. <i>Sapphirus.</i>
formes.	فيل, fyl. <i>Elephas.</i>
فقلامينون, fiqlámynún. <i>Cycla-</i>	فيلطس, fyllitis. <i>Scolopendrium</i>
men.	officinale.
فقلامينون آخر, fiqlámynún akher.	فيلون, fyllún. <i>Mercurialis</i>
<i>Cyclamen alterum.</i>	annua.
فلنجة, falanjah.	فيطل, fyṭal.
لفل, fulful. <i>Piper nigrum.</i>	فيجن, fyjan. <i>Ruta graveolens.</i>
لفل الما, fulful el-má. <i>Poly-</i>	فيلزهراج, fylizehraj. <i>Lycii succus.</i>
gonum <i>Hydropiper.</i>	فينك, fynak. <i>Pumex.</i>
فافل السودان, fulful el-súdán.	فينج, fynaj. <i>Pumex.</i>
لفل الصقالبة, fulful el-çaqálibah.	قاتلة, qáqulah. <i>Amomum Gra-</i>
<i>Semina viticis agni casti.</i>	num <i>Paradisi.</i>
لفل القرد, fulful el-qurúd. <i>Se-</i>	قاتلها, qáqályá. <i>Cacalia alpina.</i>
mina <i>indigoferae tinctoriae.</i>	قطانانقي, qaṭánánky. <i>Orni-</i>
لفل الاحوس, fulful el-ahús. <i>Se-</i>	thopus <i>compressus.</i>
mina <i>euphorbiae nereifoliae.</i>	قاتلي, qáquly. <i>Salsola fruti-</i>
لفللمويه, fulfulmúyah. <i>Radix</i>	cosa.
<i>piperis.</i>	قانة, qáníçah. <i>Ventriculus</i>
فليفلة, falyflah. <i>Sison Ammi.</i>	avium.
فلومس, flúmis. <i>Verbascum</i>	قازد, qáwanid. <i>Olei species.</i>
<i>undulatum.</i>	قاتل النمر, qátíl el-namr. <i>Aco-</i>
فل, full.	nitum <i>Pardalianches.</i>
فانجكشت, fañjankusht. <i>Vitez</i>	قاتل ابيه, qatil abyhi. <i>Arbutus</i>
<i>Agnus castus.</i>	Unedo.

قاتل الحبل, qátíl el-naḥl. <i>Amyphaea alba</i> .	قراصيا, qerácyá. <i>Prunus Cerasus</i> .
قاتل العلق, qátíl el-'alaq. <i>Anagallis coerulea</i> .	قرثمن, qrithmun. <i>Crithmum maritimum</i> .
قاتل اخيه, qátíl aḵhyhi. <i>Orchis species</i> .	قرقة العين, qarrah el-'ayn. <i>Veronica Anagallis</i> .
قاتل نفسه, qátíl nafsihí. <i>Species gummi amoniaci</i> .	قراص, qorayç. <i>Urtica</i> .
قارة, qárah. <i>Stachis germanica</i> .	قارسوة, qarsawah.
قازيا, qáqyá. <i>Succus accuciae</i> .	قراد, qurád. <i>Ricinus</i> .
<i>Mimosa nilotica</i> .	قرع, qara'. <i>Cucurbita</i> .
قبيج, qabj. <i>Tetrao rufus</i> .	قرانيا, qrányá. <i>Cornus mascula</i> .
قبطس, qobṭos. <i>Fructus myrti</i> .	قرصعة, qarç'annah. <i>Eryngium</i> .
قتاد, qatád. <i>Astragalus verus</i> .	قرصم, qarçam. <i>Solanum cordatum</i> .
قت, qat. <i>Medicago sativa sicca</i> .	قراطاغون, qrátáoghonun. <i>Polygonum Persicaria</i> .
قته, qattah. <i>Cucumis Kattah</i> .	قرمز, qermez. <i>Coccus quercus cocciferae</i> .
قثا, qiththá. <i>Cucumis</i> .	قرظ, qaraz. <i>Mimosa nilotica</i> .
قثا الحمار, qiththá el-ḥimár. <i>Momordica Elaterium</i> .	قرقمان, qarqamán.
قثا النعام, qiththá el-na'am. <i>Cucumis Colocynthis</i> .	قرط, qurṭ.
قثا الهندي, qiththá el-hindy. <i>Cassia Fistula</i> .	قرط, qirṭ. <i>Species porri</i> .
قثا الحية, qiththá el-ḥaiyah. <i>Aristolochia longa</i> .	قرطم, qurṭum el-barry. <i>Centaurea lanata</i> .
قثد, qatd. <i>Melonis species</i> .	قرون قرن الايل, qurún qarn el-aiyal. <i>Cornua cervi</i> .
قادميا, qadmya. <i>Cadmia</i> .	قرون السنبل, qurún el-sunbul. <i>Secale cornutum</i> .
قдах المريم, qadaḥ el-maryam. <i>Cotyledon Umbilicus</i> .	قرقا, qarqá. <i>Sudor</i> .
قردمانا, qardamaná. <i>Cardamomum</i> . <i>Lagoecia cuminoides</i> ?	قراص, qurráç. <i>Matricaria Chamomilla vel Parthenium</i> .
قرنفل, qaranful. <i>Caryophyllus aromaticus</i> .	قرن البحر, qarn el-baḥr. <i>Succinum</i> .

- قورول, qorúl. *Corallinum*.
 قرواليون, qarwályún. *Corallium*.
 قروتو, qurúqúmaghmá. *Cro-*
comagma.
 قرينا, qaryná.
 قرنباد, qaranbád. *Carum Carvi*.
 قريص, qorayç. *Urtica pilulifera*.
 قرنغان, qaranfán. *Carum Carvi*.
 قرنقلية, qaranfuliyah. *Bucharis*.
 قرزوة, qarnúwah.
 قرداميوني, qardámyne. *Carda-*
mine pratensis.
 قردامومن, qardámomon. *Car-*
damomum.
 قرطاس, qartás. *Charta*.
 قرطم هندي, qurṭum hindy. *Semina indigoferae tincto-*
riae.
 قرطمان, qurṭmán.
 قرم, qiram.
 قرفسيون, qarfesyon. *Piper Cu-*
beba.
 قرفسيا, qarfesýá. *Piper Cubeba*.
 قرف, qirf. *Cortices*.
 قرفة, qarfaḥ. *Winterania Ca-*
nella.
 قزطمان, quzzaṭmán. *Carda-*
momum.
 قزاق, quzzáḥ. *Species foeniculi*.
 قسط, quṣṭ. *Costus arabicus*.
 قسسوس, qissús. *Hedera Helix*.
 قسطرون, qestrún. *Cestrum. Be-*
tonica officinalis.
 قسط هندي, quṣṭ hindy. *Cos-*
tus indicus.
 قسط بحري, quṣṭ baḥary. *Cos-*
tus marinus.
 قسط شامي, quṣṭ shámy. *Inula*
Helenium.
 قسط ببقی, quṣṭ babaqy. *Ama-*
ranthus Blitum.
 قسطورة, qasṭúrah. *Castoreum*.
 قستوس, qostús. *Tragopogon*
pratense ?
 قصب, qaṣb. *Dactylus siccus*.
 قشور, qushúr. *Limatura*.
 قشور برحیة, qushúr baraḥyah. *Species aromatis*.
 قشبه, qushbah.
 قصاب, qaṣab. *Arundo*.
 قصب الذريرة, qaṣab el-zaryrah. *Calamus aromaticus. Acorus*
Calamus.
 قصب السكر, qaṣab el-sukkr. *Sacharum officinale*.
 قصاص, qiṣāç. *Medicago arbo-*
rea.
 قاصد, qaçid. *Lycium*.
 قاصدير, qaçdyr. *Plumbum*.
 قاصم, qaçam. *Gossypium her-*
baceum.
 قصاب مصري, quzzáb miçry. *Vinca minor*.
 قاصب, qaṣb. *Medicago sativa*.
 قصابانا, qaṣabáná.
 قاصم قریش, qaçam qoraysh. *Se-*
mina pini.
 قاطلب, qaṭlab. *Arbutus Unedo*.
 قطن, quṭn. *Gossypium her-*
baceum.

قطراب لوي; qatráb lawa.

قطف, qataf. *Artiplex hortensis*.

قطف البحري, qataf el-bahry. *Atriplex Halimus*.

قطران, qitrán. *Pinus Cedrus*.

قطيفة, qat'yaf. *Gnaphalium*.

قطاة, qatáh. *Tetrao Alchata Russel*.

قطايف, qatáyf. *Placentulac*.

قعبل, qa'bil. *Pancratium Scilla maritima varietas*.

قعناب, qa'nab.

قف, qaff. *Myrtus sylvestris Ruscus aculeatus*.

قفر اليهود, qaf el-yahúd. *Bitumen judaicum*.

قفور, qaffúr.

قفلوط, qafalut. *Species porri*.

قلقاس, qulqás. *Arum Colocasia*.

قلقل, qilqil. *Cassia Tora Forsk*.

قلقل, qulqul. *Cassia Tora Forsk*.

قلاقل, qaláqil. *Cassia Tora Forsk*.

قلقلان, qilqilán. *Cassia Tora Forsk*.

قلقي, qalqa. *Plumbum*.

قلب, qulb.

قلانش, qaláunash.

قلينوخوديون, qlýnúkhodyún. *Clinopodium vulgare*.

قليميا, qalymyá. *Cadmia*.

قلفونيا, qalofonyá. *Colophonium*.

قلي, qaly. *Alkali vegetabile*.

قلمان, qlimánun. *Chymenon*.

قلسيد ناردى, qalasyd nárdy. *Spicae nardi rami*.

قليحة, qalyhah.

قلىحونة, qalhúnah.

قلب, qalb. *Cor*.

قمارون, qamarún. *Piscis species*.

قمل, qaml. *Pediculus*.

قمل فرس, qaml fars. *Semina pini*.

قم فرس, qamm fars. *Semina pini*.

قماشير, qamáshyr. *Fungi*.

قحمة, qeḥmah. *Corpora in pulverem trita*.

قميلة, qamylah. *Semina athamantae cretensis*.

قملك, qumluk. *Oleris species*.

قنابري, qunnábary. *Oleris species*.

قنطريون كبير, qantúryún kabyr. *Centaureum magnum*.

قنطريون صغير, qantúryún çaghyr. *Centaureum minus*.

قنطريون صغير, qantúryún çaghyr. *Chironia Centaureum*.

قنه, qinnah. *Galbanum Bubon*.

قنه, qinnah. *Galbanum*.

قنبيل, qambyl.

قنا, qaná. *Ferula communis*.

قنفذ, qunfuz. *Hystrix cristata Russel*.

قنب, qunnab. *Cannabis sativa*.

قنارية, qináriyah. *Cynara Scolymus*.

قندول, qandúl. <i>Cytisus laniger</i> .	كافور, káfúr. <i>Laurus Camphora</i> .
قنب البري, qunnab el-barry. <i>Althaea cannabina</i> .	كافورية, káfúriyah. <i>Matricaria Parthenium</i> .
قنبرة, qunburah. <i>Galerita. Alauda cristata</i> .	كاشم رومي, káshim rúmy. <i>Ligusticum Levisticum</i> .
قند, qand. <i>Sacharum ad arundinem induratum</i> .	كاذي, kázy. <i>Pandanus odoratissimus</i> .
قنبيط, qunbyṭ. <i>Brassicae species</i> .	كارزوان, káwazwán. <i>Borago officinalis</i> ?
قندس, qundus. <i>Gypsophila Struthium</i> .	كاوجشم, káwajisham. <i>Anthemis valentina</i> ?
قوقالس, qawqális. <i>Caucalis maritima</i> .	كاسر الحجر, kásir el-ḥajar.
قوتي, qúmy.	كانج, kákanj. <i>Solanum nigrum</i> .
قومي, qome. <i>Tragopogon crocifolium</i> .	كاول, káwil. <i>Allium Porrum</i> .
قوطوليدون, qúṭúlydon. <i>Cotyledon Umbilicus</i> .	كاربا, káribá. <i>Succinum</i> .
قوتوما, qúṭúmá. <i>Campanula persicifolia</i> .	كبيب, kabyb. <i>Jus ex zea paratum</i> .
قومس البحري, qomes el-bahary. <i>Gnaphalium Leontopodium</i> .	كبر, kabbar. <i>Capparis spinosa</i> .
قونيا, qúnyá. <i>Lixivium</i> .	كبيكج, kabykej. <i>Ranunculus asiaticus</i> .
قونيزا, qúnyzá. <i>Inula viscosa</i> .	كبابة, kabábah. <i>Piper Cubeba</i> .
قوفي, qúfy. <i>Suffitus</i> .	كبريت, kibryt. <i>Sulphur</i> .
قيصوم, qayṣúm. <i>Chamaecyparissus squarrosa</i> .	كبسون, kabsún.
قنا, qiná, <i>Sedum Cepaea</i> .	كبث, kabáth. <i>Cissus arborea</i> .
قيص, qays. <i>Rumex acetosa</i> .	كبد, kabid. <i>Hepar</i> .
قينقهار, qynqahar. <i>Cancamon</i> .	كبس, kabas. <i>Pulpa colocynthis</i> .
قيص, qymes. <i>Leontopodium</i> .	كان, kattán. <i>Linum usitatis-simum</i> .
قيشور, qyshúr. <i>Pumex</i> .	كتم, katam. <i>Buxus dioica</i> .
قيموليا, qymolyá. <i>Terra Cimolia</i> .	كنيب, katyb.
قيروس, qyros. <i>Cera</i> .	كنيلة, kutylah.
قياهاق, qayhaq. <i>Zedoaria alba</i> .	كثيرا, kathyrá. <i>Astragalus verus</i> .
	كثا, katháh. <i>Flores erucacae</i> .

كثيرا لاجل, <i>kathyr áláhall. Polypodium vulgare.</i>	كرسنة, <i>kirsanah. Ercum Erri-lia.</i>
كثيرا الروس, <i>kathyr el-rowús. Polycnemum.</i>	كراويا, <i>karáwyá. Carum Carri.</i>
كثير الركب, <i>kathyr el-rakab. Convallaria Polygonatum.</i>	كراويا فارسية, <i>karáwyá fārisiyah.</i>
كثير العقل, <i>kathyr el-'aql. Convallaria Polygonatum.</i>	كرث, <i>karáth.</i>
كثيرا لاضلاع, <i>kathyr el-azlá'. Plantago major.</i>	كرومادة, <i>kermadánah. Semina enidi.</i>
كثير الروو, <i>kathyr el-rowú. Myriophyllum.</i>	كرم, <i>kurkum. Curcuma rotunda.</i>
كحيل, <i>kahylá. Borago officinalis.</i>	كرم, <i>kurkum. Crocus.</i>
كحل, <i>kuhl. Collyrium.</i>	كرسف, <i>kursuf. Gossypium herbaceum.</i>
كحل السدان, <i>kuhl el-sudán.</i>	كركر, <i>kirkir. Pinus.</i>
كحل الفارسي, <i>kuhl el-fārisy. Sarcocolla.</i>	كركمان, <i>kurkumán. Melilotus coeruleus.</i>
كحل خولان, <i>kuhl khawlán. Succus lycii.</i>	كردنان, <i>kardanán. Tordylium.</i>
كرفس, <i>karafs. Apium Petroselinum et graveolens.</i>	كرکند, <i>karkand. Lapis hyacintho similis.</i>
كرم بستاني, <i>karm bostány. Vitis vinifera.</i>	كرکهن, <i>karkahan. Anthemis Pyrethrum.</i>
كرم البري, <i>karm el-barry. Tanus communis.</i>	كرکوهن, <i>karkuhan. Anthemis Pyrethrum.</i>
كرمة بيضا, <i>karmah bayzá'. Bryonia dioica.</i>	كروش, <i>kurúsh. Ventriculi animalium.</i>
كرمة سودا, <i>karmah súdá. Bryonia alba.</i>	كرکاش, <i>karkásh. Matricaria Parthenium.</i>
كرمة شاكية, <i>karmah sháykah. Smilax aspera.</i>	كركي, <i>kurky. Ardea Grus.</i>
كرب, <i>karamb. Brassica oleacea.</i>	كزبرة, <i>kuzbarah. Coriandrum sativum.</i>
كراث, <i>kurráth. Allium Porrum.</i>	كزبرة الثعلب, <i>kuzbarah el-tha'lab.</i>
	كزوان, <i>kazwán. Melissa officinalis.</i>
	كزمازك, <i>kizmázak. Fructus tamaricis articulatae.</i>
	كسموديا, <i>kasmuwyá.</i>

كسميوقا, kasmyúqá.	كف ادم, kaff adam.
كسيدا, kusaylá.	كف الاجذم, kaff el-ajzam.
كسيح, kasyh.	كف الجذما, kaff el-jazmá.
*كسعيدون, kasayún. <i>Gladiolus Byzanthinus.</i>	كف الاسد, kaff el-asad. <i>Leontopetalum.</i>
كسبرة, kasbarah. <i>Coriandrum sativum.</i>	كف الذيب, kaff el-zyb. <i>Gen-tiana.</i>
*كزبرة البير, kuzbarah el-byr. <i>Adiantum Capillus Veneris.</i>	كف المريم, kaff el-maryam. <i>Digiti citrini.</i>
كسيرة الحمام, kasyrah el-ḥumám. <i>Fumariae species.</i>	كف الكلب, kaff el-kalb. <i>Spartium junceum.</i>
كسيرة النعلب, kasyrah el-tha'lab.	كف غير مصاف, kaff ghayr moçáf.
كسyr, kasyr. <i>Pis sicca.</i>	<i>Portulaca oleracea.</i>
كشكح, kashkah. <i>Androsaces Sertularia.</i>	كفاري, kufarra. <i>Spathae palmarum.</i>
كشنج, kashnaj. <i>Tuber terrae.</i>	كفر اليهود, kufr el-yahúd. <i>Bilumen judaicum.</i>
كشت بر كشت, kasht bar kasht. <i>Monilia textilia.</i>	كلية, kulyah. <i>Ren.</i>
كشوت, kushút. <i>Cuscuta Epithymum.</i>	كلب, kalb. <i>Canis.</i>
كشني, kushna. <i>Ervum.</i>	كلس, kils. <i>Calx viva.</i>
كشوت رومي, kushút rúmy. <i>Ab-synthium.</i>	كلح, kalḥ. <i>Ferula communis.</i>
كشط, kosht. <i>Costus arabicus.</i>	كماشير, kamáshyr. <i>Bubon macedonicum ?</i>
كشه, kishah. <i>Lavendula Stoechas.</i>	كماة, kamáh. <i>Tubera terrae.</i>
كشمش, kishmish. <i>Uvae corin-</i>	كمافيثوس, kamáfiyús. <i>Ajuga Chamaepitys.</i>
كصنديون, kçantýún. <i>Xanthium Strumarium.</i>	كامادر يوس, kamádryús. <i>Teucrium Chamaedrys.</i>
كف الضبع, kaff el-zaba'. <i>Ranunculus asiaticus.</i>	كمون, kumún. <i>Cuminum Cyminum.</i>
كف السبع, kaff el-suba'. <i>Ranunculus asiaticus.</i>	كمون حلو, kumún halw. <i>Pimpinella Anisum.</i>
كف الهر, kaff el-hirr. <i>Ranunculus — ?</i>	كمون حبشي, kumún habeshy.

- كمون الجبل, kumún el-jebbl. *Meum athamanticum.* كوكب سموس, kawkab samos. *Terra samia.*
 كمون ارضي, kumún arzy. *Carum Carvi.* كوكب الارض, kawkab el-arz. *Terra salsuginosa.*
 كمون بري, kumún barry. *Fumaria officinalis.* كيلم, kúlam. *Piper nigrum.*
 كمون اسود, kumún aswad. *Nigella sitara.* كوبر, kúbar. *Piper indicum.*
 كندر, kundur. *Boswellia turifera.* كيدرو, kyldarú. *Aspidium Filix mas.*
 كدس, kundus. *Gypsophilla Struthium.* كية, kiyah. *Pistacia Lentiscus.*
 كنكر, kinkar. *Acanthus mollis.* كنكخرس, kynkħros. *Panicum miliaceum.*
 كنكرزد, kinkar zad. *Gummi 'cynaræ scolymii.* كيلكان, kylikán. *Species zææ.*
 كنهان, kanhán. كندس, kundus. *Gypsophilla Struthium.* لاذن, lázan. *Cistus creticus.*
 كنياث, kunyáth. *Equisetum?* لازورد, lázúrd. *Lapis Lazuli.*
 كندلا, kandalá. كنكر, kinkar. *Acanthus mollis.* لاعيه, lá'iyah. *Euphorbia triaculeata.*
 كنكرزد, kinkar zad. *Gummi 'cynaræ scolymii.* لاغبوس, lághobús. *Trifolium arvense.*
 كنيب, kanyb. *Triticum Zea.* لالا, lálá. لا لباب, labláb. *Convolvulus arvensis.*
 كنيثا, kunyáth. *Equisetum?* لالباب المجوسي, labláb el-majúsy. *Linaria Elatine.*
 كندلا, kandalá. كهربا, kahrabá. *Succinum.* لبخ, lebakħ. *Persea? Jatropha Curcas.*
 كهورات, kahúrát. كهم, kahkam. *Solanum Melongena.* لبدان, labśán. *Sinapis arvensis.*
 كهيانا, kahyáná. *Paeonia officinalis rami.* لبن, laban. *Lac.*
 كوارع, kawari'. *Crura animalium.* لبا, libá. *Colostrum.*
 كور, kúr. *Bdellium.* لبن السدا, laban el-sudá. لبني, lubna. *Styrax officinalis.*
 كوز كندم, kúz kandum. كوالف, kuwálif. *Spina alba.* لبان, lubán. *Tus.*
 كوشاد, kúshád. *Gentiana romana.* لحم, laħam. *Caro.*
 كوشاد, kúshád. *Gentiana romana.* لحية التيس, liħyah el-tays. *Tragopogon pratense.*

- لحما الغول, luḥá el-ghuwal. *Asplenium Trichomanes*.
 لحام الذهب, liḥám el-zahab. *Chrysocolla*.
 لحية الحمار, liḥyah el-ḥimár. *Adiantum Capillus Veneris*.
 لحيانى, liḥyány. *Cynara Scolymus*.
 ليخنس الاكيلة, lyḵhnis el-iklylah. *Lychnis coronaria*.
 ليزاق الذهب, lizáq el-zahab. *Lithocolla*.
 ليزاق الرخام, lizák el-ruḵhám. *Lithocolla*.
 لسان, lisán. *Lingua*.
 لسان الحمل, lisán el-ḥamal. *Plantago major*.
 لسان التور, lisán el-thawr. *Bo-rago officinalis*.
 لسان العصافير, lisán el-'aṣáfy. *Fraxinus Ornus*.
 لسان السبع, lisán el-suba'.
 لسان الكلب, lisán el-kalb.
 لسان البحر, lisán el-baḥr. *Sepiae officinalis os*.
 لصف, laṣaf. *Capparis spinosa*.
 لصق, laṣaq. *Cynuræ species*.
 لصقي, liṣqy. *Cynoglossum officinale*.
 لعبة البربرية, la'bah el-berberiyah. *Colchicum autumnale*.
 لعبة المطلقة, la'bah el-moṭalaqah. *Radix atropae mandragoræ*.
 لفاح, luffáh. *Fructus atropae mandragoræ*.
 لفت, lift. *Rapum*.
 لك, lakk. *Gummi Laccae*.
 لملم, limlim. *Atriplex Halimus*.
 لنيخيطس, lonḵhytis. *Serapias Lingua*.
 لنيخيطس اخر, lonḵhytis aḵher. *Aspidium Lonchitis*.
 لوز, lawz. *Amygdalus communis*.
 لوز البربر, lawz el-berber. *Amygdala Berberorum*.
 لوييا, lúbyá. *Phaseolus vulgaris*.
 لوقاقتنا, lúqáqantā. *Cirsium tuberosum*.
 لوقاس, lúqás. *Laminum maculatum*.
 لوسيمخيدوس, lúsymaḵhyús. *Lysimachia vulgaris*.
 لولو, lúlú. *Margarita*.
 لوف, lúf. *Arum*.
 لوف ايرصارون, lúf ayriṣárún. *Arum Arisarum*.
 لفاح, luffáh. *Melonis parvæ species*.
 لوفأ, lúfá. *Species sempervivi*.
 لوقيون, lúqyún. *Lycium europæum*.
 لوطو, lúṭús. *Lotus*.
 ليبانوطس, lybánúṭis. *Cachris Libanotis*.
 ليررو, layrút. *Limonium*.
 ليررون, layrún. *Statice Limonium*.

ليبج, lybaḥ. <i>Cyanus</i> .	ما الخيار, má el-khyár. <i>Aqua cucumerum</i> .
ليفية, lyfyah.	
ليمون, lymún. <i>Citrus medica Limon</i> .	ما برط, má barṭa'.
ليمون, lymún. <i>Citrus medica Limon</i> .	ما اللحمية, má el-laḥmah.
ليمون, lymún. <i>Citrus medica Limon</i> .	ما الرماد, má el-ramád. <i>Licivium</i> .
ماثا, máthá. <i>Datura Metel</i> .	مايون, mayún. <i>Aqua piscium sale conspersorum</i> .
ماث, máth. <i>Datura Metel</i> .	
ماهودانه, máhúdāneh. <i>Euphorbia Lathyris</i> .	ماست, mást. <i>Lac acidum</i> .
ماهيزهره, máhyzehrah. <i>Menispermum Cocculus</i> .	مالقراطين, máliqrāṭun. <i>Aqua nulsu</i> .
مازرون, mázaryún. <i>Daphne oleoides</i> .	ماعز, má'iz. <i>Capra Hircus</i> .
ماميثا, mámythá. <i>Glaucium Phoenixeum</i> .	مالكي, málíky.
ماش, másh. <i>Phaseolus Mungo</i> .	ماميران, mámyrán. <i>Chelidonium majus</i> .
مارون, márún. <i>Teucrium Marum</i> .	مالى, mály. <i>Mel</i> .
ماركيدا, márkywá.	مالسوس, málisúç.
ماركونا, márkuná.	ماطر سلبه, máṭir silbah. <i>Lonicera Periclymenon</i> .
مازار, mázar. <i>Daphne alpina</i> .	ما رماهيچ, mármáhyj. <i>Muraena Anguilla</i> ?
ماسفود, másafúd.	ماطبيون, máṭobyún. <i>Ferula communis</i> .
ماس, más. <i>Adamas</i> .	مبارك, mobárik. <i>Oleum laterum</i> .
ما, má. <i>Aqua</i> .	منك, pank. <i>Citrus medica</i> .
ما الجبن, má el-jubn. <i>Serum lactis</i> .	مبختج, mibaḫtaj. <i>Succus urarum inspissatus</i> .
ما اللحم, má el-laḥam. <i>Jus carnis</i> .	مثنان, mathanán. <i>Daphne Gnidium</i> .
ما الشعير, má el-sha'yr. <i>Aqua hordei</i> .	مثنان آخر, mathanán aḫher.
ما الورد, má el-ward. <i>Aqua rosarum</i> .	ميج, majj. <i>Phaseolus Mungo</i> .
ما الكافور, má el-káfúr. <i>Aqua camphorae</i> .	محب, maḥleb. <i>Prunus Mahaleb</i> .
	محروت, maḥrút. <i>Radix ferulae assae foetidae</i> .

محمودة, maḥmúdah. <i>Convolvulus Scamonia.</i>	مري, mury. <i>Garum.</i>
محاجم, moḥájim.	مرهيطش, marhyṭash. <i>Lapidis species.</i>
مخلصة, moḥhalliṣah. <i>Orchis?</i>	مرطيش, martyšh. <i>Lapidis species.</i>
مخ, muḥḥ. <i>Medulla ossium.</i>	مرداسنج, mardásanj. <i>Lithargyrum.</i>
مخالطة, moḥhálitah. <i>Fructus cordiae myrac.</i>	مرعزي, mir'izza. <i>Pili tenues caprarum.</i>
مخيض, maḥhyz. <i>Lac debutyratum.</i>	مرقشيتا, marqashytá. <i>Lapis pyrites.</i>
مداد, midád. <i>Atramentum.</i>	مرمر, marmar. <i>Marmor.</i>
مذهب الكلب, mazhab el-kalb. <i>Alyssum.</i>	مرارة, marárah. <i>Fel.</i>
مرزنجوش, marzanjúsh. <i>Origanum Majorana.</i>	مربو, morabú. <i>Carthamus tinctorius.</i>
مرزنجوش, marzanḥúsh. <i>Origanum Majorana.</i>	مرقد, moraqquad. <i>Opium et Datura Metel.</i>
مرا, marrá. <i>Pulpa cassiae.</i>	مرار الصخر, marár el-ṣaḥr. <i>Cucumis Colocynthis.</i>
مران, murrán. <i>Fraxinus excelsior.</i>	مرجان, marján. <i>Corallium.</i>
مر, murr. <i>Myrrhu. Amyris schadschrat elmurr.</i>	مروية بلديوسة, marúbah ballatyúsah. <i>Ballota nigra.</i>
مرس, mirris. <i>Myrrhis odorata.</i>	مرويون, marrúbyún. <i>Ballota nigra.</i>
مربافل, miryáfillun. <i>Myrriphyllum spicatum.</i>	مروية, marúriyah. <i>Leontodon Taraxacum.</i>
مرطولة, murṭúlasah.	مزر, mizr. <i>Zythum.</i>
مرار, murrár.	مزمار الراعي, mizmár el-rá'y. <i>Alisma Plantago.</i>
مرانية, marányah.	مسك, misk. <i>Moschus moschifer</i>
مرو, marw. <i>Origanum Maru.</i>	مسن, misaun. <i>Cos.</i>
مرماخوز, marmáḥúz. <i>Origanum species.</i>	مسكونيا, mosahúqnyá. <i>Aqua vitri.</i>
مريخ, maryḥ.	مستعجلة, mosta'jalah. <i>Orchis species?</i>
مريجة, maryḥah.	
مرعول الجن, mar'úl el-junn.	

مِسْوَاكُ الرَّاعِي, miswák el-rá'y.	مَعِين mo'ayn. <i>Daphne olcoides</i> .
<i>Plumbago Zeylanica</i> ?	مَغَاث mugháth.
مِسْوَاكُ الْقُرُود, miswák el-qurúd.	مَغَار, maghár. <i>Alkermes</i> .
<i>Musci species</i> .	مَغْرَة, maghrah. <i>Rubrica sino-</i>
مِسْوَاكُ الْعَبَّاس, miswák el-'abbás.	<i>pica</i> .
<i>Pabulum camelorum</i> .	مَغْذِيسِيَا, maghuysyá. <i>Magnesia</i> .
مِسْكُ الْجَن, misk el-junn. <i>Che-</i>	مَغْطَايُس, maghnátys. <i>Magnes</i> .
<i>nopodium Botrys</i> .	مَغْفَايِر, maghafyr. <i>Mannae spe-</i>
مِسْمَقُورَة, mosmaqúrah. <i>Aris-</i>	<i>cies</i> .
<i>tolochia longa</i> .	مَغْأَبِير, maghábýr. <i>Mannae spe-</i>
مِسْمَاقُور, mosmaqúr. <i>Aristolo-</i>	<i>cies</i> .
<i>chia longa</i> .	مَغْثُور, moghthúr. <i>Mannae spe-</i>
مِسْمَاقَارَان, mosmaqarán. <i>Aris-</i>	<i>cies</i> .
<i>tolochia longa</i> .	مَغْغُور, moghfúr. <i>Mannae spe-</i>
مِشْمِش, mishmish. <i>Prunus ar-</i>	<i>cies</i> .
<i>meniaca</i> .	مَغْد, maghd. <i>Solanum Melon-</i>
مِشْطُ الرَّاعِي, mashṭ el-rá'y. <i>Dip-</i>	<i>gena</i> .
<i>sacus Fullonum</i> .	مَغْد, maghd. <i>Atropa Man-</i>
مِشْكُطَرَامِشِير, mushkūṭirámushýr.	<i>dragora</i> .
<i>Origanum Dictamnus</i> .	مَغْهَارُود, mogharúd. <i>Fungi parvi</i> .
مِصْطَاكِي, maṣṭaky. <i>Pistacia</i>	مَغْهَارَارَة, moghararah.
<i>Lentiscus</i> .	مَغْن, mughan. <i>Cuscuta Epithy-</i>
مِصْع, miṣa'. <i>Fructus lycii</i> .	<i>num</i> .
مِصْل, maṣl. <i>Lac acidum</i> .	مِغْرَج, mofarah. <i>Borago offici-</i>
مِصْبَاخُ الرُّوم, miṣbáḫ el-rúm.	<i>nalis</i> .
<i>Succinum</i> .	مِغْرَاچَة, mofáriḫah. <i>Matricuria</i>
مِطْبُوخ, moṭabúḫ. <i>Uvae in-</i>	<i>Chamomilla</i> .
<i>spissatae</i> .	مِغْرَجُ قَلْبِ الْحَزُون, mofarah qalb
مِطْر, maṭar. <i>Teucrium Scor-</i>	el-maḥzún. <i>Melissa offici-</i>
<i>dium</i> .	<i>nalis</i> .
مِطْرُونِيَة, maṭarúniyah. <i>Arbutus</i>	مِثْل, moql. <i>Bdellium</i> . <i>Borus-</i>
<i>Unedo</i> .	<i>sus flabelliformis</i> .
مِظ, mazṣ. <i>Flores granati</i> .	مِثْلُ مَكِي, mokl mekky. <i>Bdel-</i>
مِصْقُوق, ma'súq. <i>Lapidis species</i>	<i>lium meccense</i> .
<i>et Euphorbia Lathyris</i> .	مِثْر, maqr. <i>Aloe acerba</i> .

مقلدثا, moqlyáthá. <i>Sisymbrium</i>	مندغورة, mandaghúrah. <i>Atropa</i>
<i>Nasturtium.</i>	<i>Mandragora.</i>
مقدونس, moqadúnas. <i>Apium</i>	منثور, manthúr. <i>Species chei-</i>
• <i>Petroselinum.</i>	<i>ranthi et papaveris.</i>
مقعوقا, ma'qúqá. <i>Oleum elhinmá.</i>	مسك الارواح, momasak el-rúáh.
مكنسة الاندر, miknasah el-andar.	<i>Lavendula Stoechas.</i>
<i>Perbascum undulatum.</i>	موقد, mowaqad el-rúáh.
مكنسة قرشيّة, miknasah qarshiyah.	<i>Larendula Stoechas.</i>
ملح, malḥ. <i>Sal.</i>	مفناطيس, mofanátys. <i>Species</i>
ملح الدباغين, malḥ el-dabághyn.	<i>vitri.</i>
<i>Sal nigrum.</i>	مهد, mahd. <i>Cyclaminis species.</i>
ملح الصاغة, malḥ el-ṣághah.	مو, muww, <i>Meum athamanti-</i>
<i>Chrysocolla.</i>	<i>cum.</i>
ملح الشوثة, malḥ el-shúthah. <i>Sal</i>	موز, mawz. <i>Musa paradisiaca</i>
<i>ammoniacum.</i>	مرد اسفرم, murd isfarum. <i>Myr-</i>
ملح مسلجي, malḥ sanjy.	<i>tus sylvestris.</i>
ملح الغرب, malḥ el-gharab.	مورقا, muwarqá.
ملح الوسخ, malḥ el-wasakh.	مواغرون, miwághrún. <i>Camelina</i>
<i>Sal fossile.</i>	<i>sativa.</i>
ملوح, malúḥ. <i>Atriplex Hali-</i>	مولوبدانا, molúbdána. <i>Galena.</i>
<i>mus.</i>	موش دربندى, músh derbendy.
مالخ, mullákh. <i>Androsaces</i>	موم, múm. <i>Cera.</i>
<i>Sertularia.</i>	موميا, múmyá. <i>Mumia.</i>
ملوخيا, molúkhýá. <i>Corchorus</i>	مولي, mawla. <i>Ruta sylvestris.</i>
<i>olitorius.</i>	ميس, mys. <i>Celtis australis.</i>
ملطاة, molaṭáh.	ميعة, my'ah. <i>Styrax officinalis.</i>
ملونيا, malúnyá. <i>Pepo longa.</i>	ميديون, mydyún <i>Campanula la-</i>
ملبن, malban. <i>Dulciarii spe-</i>	<i>ciniata.</i>
<i>cies.</i>	ميسار, mysár. <i>Cerinthe minor.</i>
من, manin. <i>Manna.</i>	ميسهار, myshár. <i>Cerinthe minor.</i>
منقد, monaqad. <i>Oleum late-</i>	ميسم, mysam.
<i>rum.</i>	ميبختج, mybakhtaj. <i>Uvae in-</i>
منيرة, mannayrah.	<i>spissatae.</i>
مسكوشة, musakhúshah. <i>Spica</i>	ميوزج, mywyzaj. <i>Delphinium</i>
<i>romano.</i>	<i>Staphisagria.</i>

- نانڤوا، nánkhwáh. *Sison Ammi*. نشا، nashá. *Amylum*.
 نارجيل، nárjyl. *Cocos nucifera*. نشرة الخشب، nasharah el-
 نارنج، náranj. *Citrus Auranti- khashab. Scobs ligni*.
 um. نصار، naçár. *Cameli in monti-*
 نارمشك، narmushk. bus degentes.
 ناعبست، ná'abist. *Radix aro-* نظرون، niṭrún. *Nitrum*.
 matica? ننعن، na'na'. *Mentha sativa*.
 ناردين، nárdyn. *Spica Nardus* نعام، na'am. *Struthio Camelus*.
 indica. نفط، niṭ. *Naphtha*.
 نافوخ، náfuḵh. *Gladioli Byzan-* نقل ابن داود، niql Ebn Dáwud.
 thini radix. نلك، nilk. *Mespilus Azorolus*.
 ناركيوا، nárkywá. *Papaver* نمام، nammám. *Thymus Ser-*
Rhoeas. pyllum.
 نار، nár. *Ignis*. ناماروق، namárúq.
 ناعمة، ná'amah. *Salvia offici-* نمل، naml. *Formica*.
 nalis. نممر، nimr. *Felis Pardus*.
 نابيذ، nabyz. *Vinum ex dac-* نمكسود، mámaksúd. *Caro sicca*.
 tylis paratum. نهماية، nahmáyah.
 نابق، nabq. *Zizyphus Lotus*. نهو، nahw. *Eruca sylvestris*.
 ناقت، naḥt, *Cortex lauri cassiae*. نهسك، nahsak. *Daucus sylves-*
 نجام، najám. *Panicum dacty-* tris.
 lôn. Forsk. نوشادر، núshádir. *Sal ammoni-*
 ناجيل، najyl. acum.
 نحاس، nuḥás. *Aes*. نوى الزمر، nawa el-tamr. *Nu-*
 نحاس المحرق، nuḥás el-moḥraq. cleus dactylorum.
Aes ustum. نوارس، nawárs. *Astragalus Po-*
 نعام، nuḥám. *Phoenicopterus* terium.
ruber? نورة، núrah. *Calx viva*.
 نخاله، naḥhálah. *Furfures*. نيلوفر، nylawfar. *Nymphaea alba*.
 ندقة، nazaqah. *Sambucus Ebulus*. نيلج، nylaj. *Indigofera tinctoria*.
 نرع، nara'. *Satureja*. نيمفا، nymfá. *Nymphaea*.
 نرجس، narjis. *Narcissus poe-* نيوم، nyúm. *Heliotropium*.
 ticus. هاسمونا، hásamúná.
 نسرين، nisryn. *Rosa canina*. هال، hál. *Amomum Granum*.
 نسر، nasr. *Aquila*. *Paradisi*.

هالوك, halúk. <i>Orobanche et Arsenicum.</i>	هايل يوا, hayl yawá. <i>Amomum Granum Paradisi.</i>
هبيد, habyd. <i>Semina colocynthidis.</i>	هيشر, hayshar. <i>Cynara sylvestris.</i>
هدبة, hadbah. <i>Millepedae.</i>	وج, wajj. <i>Iris Pseudacorus.</i>
هدهد, hudhud. <i>Upupa Epops.</i>	وحشيزق, wahshyraq. <i>Artemisia judaica</i> ?
هدبليہ, huzayliyah.	وحشيزق, wahshyraq. <i>Artemisia judaica</i> ?
هرونه, haranwah. <i>Fructus aloexyli agallochi.</i>	وداع, wada'. <i>Venus Dione.</i>
هرجان, harján.	وارنه, waraiyah. <i>Carduus tenuiflorus.</i>
هرد, hurd. <i>Amonum Curcuma.</i>	ودح, wazah. <i>Oesypus</i> ?
هرفيلس, haraqylis. <i>Sonchus ole-raceus.</i>	ورد, ward. <i>Rosa.</i>
هرطمان, hurṭumán. <i>Arena.</i>	ورد الحمار, ward el-ḥimár. <i>Buphthalmum.</i>
هزار جشان, hazár jushán. <i>Bryonia dioica.</i>	ورد مندین, ward muntyn.
هشت دهان, hasht duhán. <i>Aloexylon indicum.</i>	ورد الحمر, ward el-ḥamar. <i>Paeonia.</i>
هفت بهلو, haft bahlú.	ورد الزينة, ward el-zynah. <i>Flos althaeae ficifoliae.</i>
هليون, halyún. <i>Asparagus officinalis.</i>	ورد دفرا, ward dafrá. <i>Anemone coronaria.</i>
هليلج, haly-laj. <i>Myrobalanus Chebula.</i>	ورد الحب, ward el-ḥabb. <i>Physalis Alkekengi.</i>
هماغال, hamaqál.	ورد السباح, ward el-sabáh. <i>Rubus fruticosus.</i>
ههنا, hahaná. <i>Salicis species.</i>	ورد صيني, ward çyny. <i>Rosa canina.</i>
هندنا, hindabá. <i>Cichorium.</i>	ورس, wars. <i>Lapis tauri.</i>
هوم المجوس, húm el-majús.	ورس, wars. <i>Memecylon tinctorium.</i>
هبرون, hayrún. <i>Dactyli recentes optimi.</i>	ورشان, warshán. <i>Columba Tur-tur.</i>
هيوفاريقون, hyúfaryqún. <i>Hypericum barbatum.</i>	ورل, waral. <i>Lacerta nilotica.</i>
هيوبرقسطيدياس, hybúqistydás. <i>Hypocistus.</i>	ورالحور, warḥálúr. <i>Bryonia dioica.</i>
هيزمان, hayzamán. <i>Raphanus Raphanistrum.</i>	

ورطوي, wartawy. <i>Stachis</i> .	يذمارا, yazmará. <i>Hederæ species</i> .
وسخ, wasakh. <i>Sordes</i> .	
وسخ الكواير, wasakh el-kawáyr.	يربورج, yarbúraj. <i>Amaranthus Blitum</i> .
<i>Sordes apiuriæ</i> .	
وشيج, washyj.	يربوز, yarbúz. <i>Amaranthus Blitum</i> .
وسمة, wasmah. <i>Folia indigoferæ tinctoriæ</i> .	يراع, yará'a. <i>Bambusa arundinacea</i> .
وشق, wushaq.	
وشق, washaq. <i>Gummi ammoniacum</i> .	يراميع, yarámya'. <i>Asparagus officinalis</i> .
وطم, waṭam.	يرنا, yaranná. <i>Lawsonia inermis</i> .
وغد, waghd. <i>Solanum Melongena</i> .	يربطور, yarbātúr. <i>Peucedanum officinale</i> .
وقل, waql. <i>Bellium siccum</i> .	
ولب, walb. <i>Euphorbia Peplis</i> .	يرررسان, yaryarshán.
ولف, walf. <i>Cyclamen europeum</i> .	يشف, yashaf. <i>Jaspis</i> .
ونجهل, wanḡahul.	يرربوع, yarbú'. <i>Dipus Jaculus</i> .
ياسمين, yásmyn. <i>Jasminum Sambac</i> .	يعقوب, ya'qúb. <i>Lapidis species</i> .
	يعزيد, ya'zyd. <i>Chondrilla juncea</i> .
ياقوت, yáqút. <i>Hyacinthus</i> .	يغميضا, yaghmyzá. <i>Rheum Ribes</i> .
يبررح, yabrúḡ. <i>Atropa Mandragora</i> .	ينطين, yaqtyn. <i>Cucurbitae</i> .
يبرروح الصيني, yabrúḡ el-ᡑyny.	يلنجوج, yalanjúj. <i>Lignum indicum</i> .
ينوع, yatú'. <i>Euphorbiæ</i> .	يماهر, yamáhir. <i>Columba</i> .
ينوغ, yatúgh. <i>Fructus Hyperanthæ Moringæ</i> .	ينبوت, yانبút.
ينذ, yahnaz.	ينذوت, yantút. <i>Thapsia Asclepium</i> .
ينخصص, jakhᡑaç. <i>Apii species</i> .	ينق, yanq. <i>Coagulum</i> .
ينذوة, yazwah. <i>Sambucus Ebulus</i> .	ينشته, yانشته.
	ي, yanmah.

A CASE
OF
CÆSARIAN OPERATION.
•SPONTANEOUS EXTRUSION OF THE PLACENTA AFTER DEATH,
FATAL LACERATION OF THE BRAIN.

BY
ALLAN WEBB, ESQ.

(READ 6TH MAY, 1843)

I WAS called on Saturday evening, August 6th, 1843, to visit a poor woman in Barracks who was reported to be “in a fit.”

I found her pale and perfectly insensible, with complete resolution of the limbs. Pupils, especially that of the right eye, widely *dilated*, a puffing, whistling, respiration, skin cold; and a very feeble irregular pulse. She was a fine looking European woman, far advanced in pregnancy. A puffy tumour, about the size of half an orange, was observed at the back of the head.

On enquiry, I found there had been a quarrel between herself and husband. She attempted to strike him, he to defend himself, raised his arm, which caught her, and she fell backwards, her head (with this additional impetus, added to her advanced preg-

nancy), dashing against the stone floor. This happened at two o'clock, and she was at the time insensible, but soon recovered, and was sitting up, and even talking with the women, at four.

She then exclaimed suddenly "I am done for now," staggered in attempting to walk, and when laid upon her bed, again became insensible, and continued so until I saw her at six o'clock.

I felt certain that effusion was taking place upon the brain, and I thought most likely upon the right side, from one pupil only being dilated.

Seven o'clock, I saw her with Dr. —, to whom I stated my conviction, that effusion of blood was rapidly taking place. We consulted upon the question of trephining immediately, but decided against it; concluding, that the extravasation of blood would be found on the opposite side of the skull to that of the fracture—that the fracture might be through the base of the skull, opposite the external bruise, but the effusion would be from the contre-coup, either tearing away the dura mater and brain from the frontal bone, or lacerating the substance of the brain itself. This was deduced from the state of the pupils, the pulse, breathing and muscular power. We then resolved, that an attempt should be made to save the child upon the death of the parent, (which we looked upon as inevitable) by performing the cæsarian section.

I was called away elsewhere, and left orders that her death should be reported to me without any delay. But this order was neglected, and it was only

upon my return at 10 o'clock, that I learnt, upon enquiry, that she was dead. Some said half an hour, others an hour, others an hour and half had elapsed since she breathed her last.

To save further delay, with a common French bistoury which I had in my pocket, and the assistance of Dr.——, I immediately took measures to save the child.

A longitudinal incision through the integuments of the abdomen, in the course of the *linea alba*, exposed the womb, which was apparently warmer than natural. It was opened in the same manner at its upper anterior aspect, where it had nothing intervening between it and the abdominal parietes. But the placenta was attached over the spot which had been cut open, and bled freely. By passing the hand quickly lower down, between this and the uterine walls, the membranes were distinguished, ruptured, and the child readily delivered.

The infant was still quite warm, not quite full grown, of a good colour. Attempts were made to establish respiration by inflating the lungs through a tube, but these were ineffectual. The child became cold, more and more livid, I desisted, and returned to lay it by the mother, when I was surprised to observe that the womb instead of filling all the abdomen had so contracted as to have spontaneously extruded part of the placenta even, in the manner you may now see in the preparation before you.—*SEE Plate.*

After an interval of half an hour we proceeded to the

AUTOPSY.

The abdominal organs were all healthy.

The following were the appearances observed in the head :

The head.—This was carefully opened, and the saw carried low anteriorly, *beneath the orbital plates.*

No fracture was found immediately upon the salient part of the occipital bone opposed to the bruise, and very slight extravasation of blood in the pericranium, none at all elsewhere. *On removing the calvarium, and the orbital plates, with the brain and dura mater attached,* the fracture was seen, running through that lower hollow of the occipital bone, which receives the cerebellum, towards the foramen magnum, where it terminated. No effusion of blood, whatever, had here taken place. *On removing the right orbital plate, however, extensive extravasation of blood was found in this situation, underneath the dura mater,* blood also effused in the sulci between the convolutions. A less degree of it over the left orbital plate, and in the sulci between the pia mater and the arachnoid.

The brain exceedingly softened throughout both of the anterior lobes ; and an extensive laceration of the substance of the anterior lobe, running right back to the lateral ventricle of the right side. The back part of the brain, and cerebellum, were firm and healthy ; ulcerative action was apparent in the pia mater, in the sulcus between the anterior and middle lobes.

I found on enquiry, that she had suffered greatly from head-aches for some time before death; and was dreadfully irritable and suspicious in her temper.

It was a great satisfaction in this case, to be able, through the great care observed in removing the parts, to demonstrate this softening as well as laceration of the brain. By slicing horizontally, first the anterior, and then the posterior surface of the brain, and then pressing with the finger alternately upon each, this became abundantly evident. The softened surface became *waving* upon inclining it. Upon this pathological fact alone, the man escaped being committed to trial.

The next remark is only repeating that of M. TOULMOUCHE—"It proves the independent contractility of the uterus, since this took place after death, with as much energy almost as could have occurred during life" (*See Encyclographie des Sciences Médicales, August, 1842, p. 258*) In which the same phenomenon is noticed in a case of Cæsarion operation—Similar examples of this uterine energy after death are found also in BARTHOLINUS,* who does not however give

"* *Mulier post mortem pariens*—Uxor Nicolai Cerevisiæ coctoris in Nosocomio Hafniensi extra portam Boiealem gravida legitimum gestationis terminum morte antevertit sex hebdomadibus. Illa mense Octobri 1653. defunctâ fœtus utero inclusus mortuus credebatur. Hinc ad sepulturam omnia componuntur, lavatur cadaver, linteamina sepulchralia corpori rigido inducuntur et more funerali arcè cadaveri assutuntur. Sic sepulturæ dicatus dies expectatur. Post horam à morte 48. intumuit abdomen, thorasque, et ruptæ ferales interulæ corpori emortuo assutæ, et lochia copiosius prodire visa. Attonitæ adstantes feminae, aliud agentes cogitantesque accurrunt, diductisque cadaveris cruribus ex

the uterus credit for this parturient energy, but attributes the birth solely to the independent life, and the struggles of the child—adding pathetically enough—“sed ope omni destitutus, *fractis viribus*, in ipso partu extinctus fuit.” Hist. XCIX. Cent. page 305. Edit. 12^o Hagæ Com.

maternis claustris cluctantem vident puerulum masculum, elegantem omnibusque numeris perfectum, sed mortuum, secundinas verò in via hærentes. Excipitur puellulus, et cum matre in cæmeterio Ecclesiæ novæ suburbanæ sepelitur. Actam ita esse rem maritus defunctæ adhuc superstes retulit, fidem fecerunt mulieres honestissimæ præsentis, Nosocomii Præfæctus confirmavit, omnes à me diligenter quæsitæ et examinati, denique M. Torchillus Tullius Diaconus ad Templum B. Virginis, qui funebrem orationem sacram habuit, uberius testabitur.

“Memoriæ posterorum digna historia, et oculis lectorum. Mirum profectò vitam embryoni spacio duorum dierum totidemque noctium defuncta matre fuisse superstitem. Augent admirationem compacta crura, clausæ viæ uterinæ, et lintea sepulchralia cadaver constringentia. Cæterum robustum fœtum fuisse oportet, qui matris vita et actione cessante solus partum promovere potuerit et terminum consuetum antevertere. Alioquin in puerperis defunctis consilium *Caroli Stephani* 1. 3. de Diss. Part. c. 1. sequendum est, ut matre in agone constituta, aliqua re inter dentes interposita apertum morientis os servetur, et obstetrix nunquam ab ostio vulvæ manum dimoveat, et incurva ac diducta mulieris femora, quanta potest diligentia contineat. Nulla talis cura puerulum nostrum adjuvit, solus et partus et puerperæ et obstetricis munia implevit, sed ope omni destitutus, fractis viribus, in ipso partu extinctus fuit. Mulierculæ nostrates superstitiosæ, etiam fœtum in utero mortuum defuncta matre necessariò sua sponte proditurum credunt, afferuntque experientias, quibus nolim fidem adhiberi. Hinc cum cadavere puerperæ in arca ferali includunt forficem, acus, spongias, aliaque puerperii instrumenta, quibus credunt prodituro infanti opus esse.”



A CASE
OF
SUCCESSFUL OPERATION
FOR AN
• OSTEOSARCOMATOUS TUMOR
OF THE
LOWER JAW, INVOLVING THE ENTIRE BODY OF THAT BONE,
FROM THE RIGHT RAMUS TO THE LEFT ANGLE,
BY
R. O'SHAUGHNESSY, ESQ.
SUPERINTENDENT OF THE GURRUNHUTTAH DISPENSARY.

READ 6TH JULY, 1844.

THE subject of the following case is a Native of Tirhoot, about forty years of age, and of a strong, healthy constitution. He presented himself at the Gurranhuttah Dispensary in April last, with a tumor of the inferior maxillary bone, which he stated had been growing for about two years and a half. The disease first appeared in the form of a small painful swelling of the gum, at the root of the right anterior molar tooth, which soon fell out. This swelling gradually increased; and as the disease advanced the teeth loosened, and dropped out, one by one, so that when he presented himself at the dispensary, only the three last molars of the left side were remaining; the disease having advanced to the root of the external molar tooth, which fell out a short time previous to his arrival in Calcutta.

The tumor engaged the entire body of the bone extending from the root of the right ramus to about an inch anterior to the left angle. It appeared to be about the size of an infant's head, and it projected forwards and downwards; not producing much deformity to the mouth, but stretching the skin of the throat by its protrusion, so as to give the idea of great and painful distention. Externally it felt firm and elastic; and slightly nodulated at the right side, where the skin covering that part of the tumor was marked with (indeed I may say composed of) numerous cicatrices, produced by the application of the actual cautery, caustics, and incision employed by native quacks, in their rude attempts to cure the diseases. The tumor was not painful to the touch, except at the left side, where the remaining sound portion of bone joined the diseased mass.

In the mouth the tumor projected so as to displace the tongue and force it upwards, backwards and towards the left side. The patient complained of constant pain, which he said prevented his sleeping at night, and he expressed himself most anxious to have the operation performed without delay.

On Monday, the 22nd of April, I proceeded to the operation in the presence of Dr. Chapman, Dr. Stewart, Mr. Daly of the College Hospital, and several of the Native and Ceylon Students of the Medical College. The patient was seated in a strong arm chair, having a moveable crutch attached to its back, on which his head was fixed by an assistant.

Standing in front of the patient, I commenced the

operation by an incision which extended from a little anterior to the lobe of the left ear, to opposite the tube of the right, cutting first downwards to the left angle, across the base of the tumor to the right angle, and then upwards as far as the articulation. This was the only incision I made through the skin. By turning up this flap, and cutting through the membrane of the mouth, I was able to lay bare the entire extent of the disease, and to sever the bones without cutting through the lip at all ; thereby avoiding the chance of producing that disagreeable expression which I think is invariably given to the mouth by the cicatrix, when the lip has been divided, no matter how neatly the parts may be brought into apposition, or how evenly they may unite.

I cut through the bone, about an inch anterior to its angle, in the usual way, by first deeply notching it with a saw, and then applying the bone nippers. This being effected, I next proceeded to disarticulate the right condyle from its socket, which (having previously cut away the insertion of the temporal muscle) I found no difficulty in accomplishing, with a sharp-pointed, strong-backed knife, such an instrument as is usually employed for amputating the fingers at the joints.

The head of the bone being disarticulated, and the part of the jaw to be divided cut through, the rest of the operation is easily completed, but, in dividing the soft parts, the edge of the knife should always be directed towards the tumor, and the incisions made as close to it as possible, the diseased mass being raised

and drawn forwards at the same time with the left hand, so as to remove it, as far as practicable from the large vessels of the neck with which these tumors are generally in contact on either side of the larynx.

On dividing the muscles of the tongue, which I did slowly, one by one, there was, as I expected, a sudden retroversion of that organ into the fauces, causing much distress and struggling, which lasted, however, but for a few seconds, when the patient began to regain some power over it, and he was able to swallow fluids conveyed to the back of the tongue by means of a gum elastic tube, so that I had not much reason to regret having omitted the precaution recommended, and practised by most Surgeons, of passing a hook, or needle and thread, through the tip of the tongue, by which it might be drawn forwards, (or prevented from going backwards,) on the division of the muscles being accomplished. This is a painful proceeding, and a cruel one, if not absolutely necessary.

During the operation I divided several large arteries, which I secured as I proceeded; so that, with the exception of the internal maxillary, there was no vessel of any importance to take up after the tumor was removed. When the operation was completed the patient became slightly convulsed, cold, and almost pulseless. From this state of collapse he slowly recovered, and in the course of three or four hours a healthy re-action set in. The convulsions returned slightly once or twice in the course of the day, and he complained of great pain in the throat on attempt-

ing to swallow. All these disagreeable symptoms disappeared in the course of a day or two. He was fed on milk and mutton broth, through a tube, having a glass funnel attached to one end, the other end being held by the patient himself on the dorsum of the tongue.

- Nearly the whole of the skin which covered the right side of the tumor, and which was completely disorganised by the actual cantery, &c., which the Native Quacks applied to it, sloughed away, leaving a large opening from the side of the throat into the cavity of the mouth; this has however gradually contracted, and only a very small fistula now remains, which may be easily remedied by a very simple operation, if it does not close of itself, as I expect it will in a few days.

The poor man is now comparatively in perfect comfort. He can eat and drink and sleep; and he is free both day and night from pain, a luxury to which he was a stranger for upwards of two years previous to the operation.

On examination of the tumor after the operation, I found it to possess the usual characteristics of osteosarcoma. The centre cellular, containing a fluid of half brain, half grumous blood-like appearance, with spicule of bone projecting in all directions through it, the whole being surrounded by a thick coat of a fibro-cartilaginous character.

The accompanying admirable sketch of the appearance of the patient before the operation, is from the pencil of Mr. Daly of the Medical College.

DESCRIPTION
OF A
PECULIAR FORM
OF
ERUPTIVE FEVER IN CALCUTTA.

BY
H. H. GOODEVE, ESQ., M. D.

PROFESSOR OF ANATOMY, ETC., IN THE MEDICAL COLLEGE.

PRESENTED OCTOBER 5, 1844.

THE disease I am about to describe is, I have no doubt, generally well known to many of my brother practitioners in Calcutta, but it has nowhere been noticed in print, and it may be desirable to have some account of it upon record. It presents moreover some characters, which, if my own observations be correct, render it peculiarly interesting, and which, as far as I can learn, have not been previously remarked. I am anxious to draw attention to the points in question, and from the experience of others to verify my opinions on the subject, or if incorrect to find just grounds for relinquishing them. ●

The disease I allude to is a remittent fever, attended by a peculiar eruption, resembling scarlatina; and so well marked are the characters of the cutaneous affection, that, combined with other symptoms I am

induced to regard it as a new form of exanthema peculiar to this country.

It has I believe nearly all, if not the whole, of the characteristic symptoms of the exanthemata of Europe. *The eruption is critical, it appears after preliminary fever of some days' duration, and it is certainly epidemic.* The only doubtful points are, 1st, whether it occurs oftener than once in the patient's life, and 2ndly, whether the disorder is infectious or otherwise. My own experience induces me to regard the first of these doubtful characters in the negative. I believe that it never attacks the same patient a second time, but more extended observation is necessary to decide this question finally. With respect to the second, contagion is so much modified by the habits and mode of life of residents in this country, that it is always less marked than any other symptom of the exanthems, and consequently a more difficult question to decide in a new form of disease. The free ventilation of the streets and houses, and the great attention paid to bodily and domestic cleanliness amongst the European part of the community, render them peculiarly exempt at all times from the influence of infectious disorders. I certainly have seen nothing as yet to induce me to regard this complaint as contagious.

My own field of observation being limited to Calcutta and its immediate neighbourhood, I am unable to say whether it appears elsewhere in India; but I have no doubt that we shall soon receive ample information on the subject from other parts of the country.

This disease commences with the ordinary symptoms of pyrexia; the violence of the attack varying according to the prevailing character of the epidemic fever of the season; sometimes it is exceedingly severe with local congestions, at others it is very mild without any complication. This year, for example, it has greatly resembled a species of influenza which has been prevalent in Calcutta.

The preliminary febrile symptoms continue for several days; the period of development being uncertain; not exceeding *seven* days and not less than three. The eruption first appears on the palms of the hands and the soles of the feet, extending rapidly to the fingers and toes, and to the back of the hand and foot, subsequently in some cases covering the arms and legs. The face is next attacked, and is usually very deeply tinged with it, even to the roots of the hair; the eyes and lips becoming very red. The eruption frequently passes from hence down the neck on to the chest. It very rarely reaches any part of the abdomen, though I have seen cases where the whole body is covered, scarcely a spot as large as a rupee remaining untouched. On the third day the cutaneous affection subsides, and it entirely disappears on the fifth or sixth.

The eruption in many respects resembles scarlatina. It occurs in irregular patches of a bright red color, scarcely elevated above the level of the surrounding skin; the spots are usually confluent. It is attended with a peculiar tingling and itching, which is so intolerable in many cases as to prevent sleep during

the whole time of its continuance. As it fades away the cuticle usually scales off in small flakes, but occasionally the marks continue for some time, appearing whenever the skin is heated. The eruption has no affinity whatever with urticaria or lichen; and it differs essentially from scarlatina in the total absence of irritation, or ulceration in the fauces.

The fever always subsides upon the outbreak of the eruption, and never re-appears in the secondary form, as we sometimes see in variola, &c.; neither does any internal local affection attend on the eruption or follow its departure. As far as I have had an opportunity of observing the disease, it is certainly of a mild character, and I am not aware of any fatal cases having occurred. Possibly those who died may have been classed as victims to some other prevailing epidemic fever; the eruption in these cases having been overlooked, or the severity of the attendant fever not allowing time or opportunity for the cutaneous symptoms to develop themselves. The disease generally appears in the rains when remittent fever is epidemic; but I have seen it occasionally during other seasons occurring sporadically.

The usual sufferers, as may be expected if my theory of the disease is correct, are Europeans newly arrived in the country, and though chiefly affecting young people it is by no means confined to that class; patients of all ages are attacked by it, even young children occasionally. I have never seen the complaint in those born in the country from European parents

or amongst East Indians who have never left their native land.

With respect to the cause and pathology of this disease I have no observations to offer. It appears to arise like other epidemics from malaria, and apparently does not in any way differ in its morbid anatomy from the common fever of the country ; but I have before remarked, no opportunity has occurred to me of examining the bodies of any patients who may have died of the complaint.

It requires the same treatment as other remittent fevers, purgatives, leeches, quinine, &c. In some cases, of robust individuals with cerebral congestion, venesection may be requisite, but caution is necessary in using severe depletion, for there is a great tendency to exhaustion in the later stages of the disorder ; thus affording another type of the exanthemata.

CASE
RESEMBLING PHTHISIS
TERMINATING
SUCCESSFULLY,

BY
H. H. GOODEVE, ESQ., M. D.

PROFESSOR OF ANATOMY, ETC. IN THE MEDICAL COLLEGE.

PRESENTED OCTOBER 5, 1844.

THE following case is offered to the Society as a curious example of the rapid cure of what appeared, *prima facie*, to be a well marked example of Phthisis, in a very advanced stage. Whether the disease was really that which it seemed to be, or only an aggravated specimen of Bronchitis, or a pulmonary abscess, I leave others to decide. I give the facts as they occurred to me. Whatever may have been the absolute local disease, there was copious purulent expectoration from the lungs, with hectic fever and its attendant Diarrhœa, reducing the patient to the verge of death. I do not think I ever before saw a person recover such complete health and so speedily from such a state of exhaustion.

We frequently hear of patients affected with Phthisis successfully treated by Iodine, by Chlorine fumi-

gations, and latterly by frictions of animal oil, and by Naphtha and Hydropathy, but I do not know that these cases were better marked than this one of mine, which was evidently cured by beefsteaks and port wine. Certainly an agreeable system of treatment if nothing more can be said in its favor. In similar cases I would certainly again resort to the same species of invigoration, for it appears to me the best chance we can offer the patient under these circumstances. Why should we not treat suppuration in the lungs as we would manage patients laboring under suppuration of the joints, or suffering from Psoas abscess, where we should undoubtedly trust more to nourishing food and drink than to any other Medical treatment? It may be objected that the patient will not take this diet or cannot digest it. This may happen sometimes. Even in the case in question it required great persuasion to induce the girl to eat at all, and the food at first was often rejected shortly after it was taken; but she persevered and succeeded, and why should not others do the same.

Miss T. at. 18, was placed under my care in the beginning of March 1840, she was a delicate scrofulous-looking girl, who had shewn from an early age a strong tendency to pulmonary disease. In fact she was sent to India a few months before I first saw her with the intention of removing, by a residence in a tropical climate, the great predisposition to Phthisis which she evinced. Miss T. came to this country by way of Egypt, and was exposed to much fatigue and annoyance during the voyage. She dates the com-

incommencement of the attack from which she was suffering to the harrassing occurrences of that journey.

When I saw her first, she had frequent and distressing fits of coughing, increasing in violence during the night, and attended by a very copious purulent expectoration. There was pain in the right side of the chest and oppression of breathing; her pulse was weak; always above 100; appetite deficient, with great bodily debility; the hectic flush was present in her cheeks, and she was attacked daily by fever, followed by violent perspiration: The catamenia had been absent for some months.

The chest generally was dull on percussion, and I thought that I detected Pectoriloquy and cavernous cough on the left side, but I may have been mistaken. These symptoms had existed for about a month previous to my visit; they had begun gradually, the cough being attended with slight Hæmoptysis at first. During the last few days colliquative Diarrhœa had set in, continuing to be very obstinate. The symptoms I have described continued more than a month, the patient growing daily weaker and more emaciated. Very troublesome Bed sores having also made their appearance, her sufferings were greatly aggravated. The fits of coughing and the difficulty of discharging the very copious sputa occasionally threatened instant suffocation, and she often became so weak and faint that her friends expected her to die every minute.

Dr. Nicolson met me in consultation about this period, and we both regarded the patient as sinking in

the last stage of Phthisis. Various medicines were tried throughout this time, Digitalis, Iodine, Ipecacuanha and Opium in various combinations, and counter-irritation by means of blisters and tartar emetic externally.

No benefit being apparent from the medical treatment hitherto pursued; from the beginning of May I directed Miss T. to leave off all other medicines, and to take only chalk mixture, with Kino and Laudanum sufficient to restrain the diarrhœa and a gentle tonic of Columbo and Quinine. I ordered her at the same time to live principally upon animal food, with two or three glasses of port wine daily, or beer if she preferred the latter. She was carried out every evening in a carriage for an hour. Under this treatment, to my great astonishment I confess, she rapidly improved. Her cough and expectoration diminished, the hectic disappeared, her appetite improved. She gained flesh and strength and in two months, except that the catamenia had not returned, she was restored to perfect health. Shortly afterwards she left the country for Europe, and I have since heard that she has had no return of the disease from the fatal termination of which she had so wonderfully escaped.

REMARKS
ON THE
E F F E C T S
OF
FOREIGN BODIES LODGED IN THE WINDPIPE.
BY
T. A. WISE, M. D.

READ 3RD SEPTEMBER, 1842.

THE contrivance by which the food and drink pass into the gullet, without entering the wind-pipe is very simple, and is so effectual that it is only on very rare occasions that any enter the air passages. This usually takes place as the person is holding his head backwards, while he has a foreign body in his mouth, or is speaking, at the moment when he is in the act of swallowing. At such a time a portion of food or drink may pass into the wind-pipe with the current of air, which is followed by an immediate and powerful effort to expel the foreign matter. So sensitive are these parts, that even a drop of water passing into the air passages produces the most violent irritation; and the entrance of a solid body endangers suffocation at the time, and is followed by a train of dangerous consequences. The following remarks are intended to describe the symptoms which follow the lodgement of foreign substances

in the air passages, and the best method of treating such patients.

The foreign body usually descends the right branch of the bronchus, as this is more direct than the left branch, and passes more or less deep into the air passages according to the size, form, and weight, of the substance. Sometimes the breathing is so much impeded by edema, or a thickening, or ulceration of the rima glottidis, as to terminate in suffocation unless the operation of Laryngotomy or rather tracherotomy is immediately performed. In the case of a woman to whose assistance I was suddenly called during the night, when I was House surgeon to St. Bartholomew's Hospital London, before I could reach the ward, she had ceased to breathe. I immediately performed the operation of Laryngotomy. The air passed through the wound, and the patient recovered for a time, but died next day. On examination a circular phagedenic ulcer, with a thick edge was situated near the rima glottidis, the enlargement of which, and the accumulation of secretion from its surface, was the immediate cause of death.

Soon after the occurrence of the above case, my excellent colleague Mr. Warry, and myself were called to another case of the same kind. The success of the operation of Laryngotomy, in this patient, induces me to add the following particulars :

Thomas Esdale, aged 25, a healthy shepherd, having been much exposed to cold during the months of January and February, whilst taking mercury for the cure of secondary symptoms of syphilis, found his

throat painful, attended with a dry cough, and a peculiar change in his voice. During the succeeding three months he gradually got worse, and on the 17th of April he was admitted into St. Bartholomew's Hospital. The usual local and general remedies were employed, without much manifest relief. During the night of the 30th May we were called to see this patient, as he had become suddenly worse. We found him sitting up in bed, leaning forward, and labouring under the following symptoms: his breathing was difficult, and accompanied with a hissing noise, and short, dry, suffocating cough. The slight expectoration, which had hitherto been present, had now ceased. The pulse was 135, the countenance livid, with cold perspiration over the whole body. In this alarming state the operation of Laryngotomy was performed by Mr. Warry. The air escaped with considerable force, as soon as the opening was made into the Larynx, and the patient was instantly relieved. After waiting for some time, to allow the violent spasm of the muscles of the throat to subside, a silver canula was introduced, and worn for some time. The man recovered; and in August, when I last saw him, he was wearing the canula, and could, consequently, only speak in a whisper.

Another case in which Laryngotomy should be performed to save the life of the patient; is when an extraneous substance is lodged in the Larynx and threatens suffocation. I am indebted to the kindness of Dr. Taylor, Civil Surgeon of Dacca, for the

following particulars of an interesting case of this kind.

"In the year 1832, a woman came to the Native Hospital, and entreated that immediate assistance might be rendered to an infant, ten months old, which she had in her arms. She stated, that the child, whilst crawling about on the floor of the place, where she was cooking, had put a small fish into its mouth, and that she was unable to extract it. Her home was a quarter of a mile from the hospital, and by the time she arrived, the child was apparently dead, being quite insensible; its face livid, and its respiration and circulation suspended. On opening and examining its mouth, a bulky substance was found closely impacted in the back part of the fauces, and immediately over the glottis. Attempts were made to remove it; but being ineffectual. Laryngotomy was performed, as the only chance of saving the patient's life. A few seconds after the Larynx was opened, the child began to breathe, and in a short time respiration was completely restored. The immediate danger being thus removed, the mouth was again examined, when the substance filling up the back part of the throat was easily extracted by means of a long forceps. It proved to be a small flat fish, a species of sole, five inches long, named Pan (*Pleuronectes Pan*). It is probable that the fish was alive at the time the child put it into its mouth; and that by a sudden jerk, or motion of its body it got into the fauces, when, by means of the bristle-rays of its fins, and the spasm of the pharynx and glottis

excited by its presence, it became fixed, so as to resist all the efforts that were made, in the first instance, to remove it. The little patient soon recovered from the operation. He is now 12 years of age; has passed through infancy without suffering from any disease of the Larynx or Trachea.

The effects which the foreign body produces, when it does not cause immediate suffocation, are as follows

1. By the constant passage of the air, along the tube in which the body is lodged, there is an irritation kept up by its movement over the delicate mucous membrane of the air tubes.

2. This produces inflammation of the lining passages, and extends to the submucous cellular tissue, which unites the bronchial tubes and vesicles to the serous membrane of the lungs; lymph is effused into the interstices of the bronchial tubes and vesicles, which are more or less compressed by this newly deposited substance. In such a condition the pulmonic substance, which surrounds a portion of the inflamed membrane, becomes harder and denser; so that it loses its elasticity and compressibility, and resembles a portion of liver, or is said to be hepatised. This often extends, and involves large portions of both sides of the lungs. In more acute cases, abscesses form in the substance of the lungs, when the symptoms of bronchial, or mucous inflammation, is complicated with the usual symptoms of pneumonia.

3. The third peculiarity is the salutary influence of nature in healing up the abscesses, and restoring

the parts to their natural functions, as soon as the irritating cause is removed.

Examples of such effects are given in the 42nd volume of the *Edinburgh Medical and Surgical Journal* by Dr. Donaldson, to which Dr. Cragie has added an interesting annotation. The foreign bodies which had passed into the wind-pipe differ. In one case it was the foil or covering of a button,* in another a nail,† in a third case a leaden shot,‡ in a fourth a piece of walnut,§ in a fifth an artificial tooth,|| which dropped into the wind-pipe. In all these cases the symptoms varied with the size of the foreign body, its weight, and the part in which it was lodged. In general the same symptoms were produced; such as fits of coughing, wheezing, hoarseness, difficult breathing, a feeling of weight, anxiety, and pectoral distress, expectoration of thick purulent mucus, often streaked with blood, very quick, and often irregular pulse, night sweats, fetid breath, so that the smell was almost insupportable, and wasting of the flesh and strength. After a longer or shorter period the foreign body was generally coughed up with thick mucus, and the bronchial and pulmonary diseases subsided.

* *Memoirs of the Life and Writings of the late, I. L. Lettson, M. D.* by F. J. Pettigrew, vol. iii. p. 82.

† *Howship's Practical Observations*, p. 222.

‡ *Cragie's Annotations*, *Edinburgh Medical and Surgical Journal* vol. 42, p. 106.

§ *Dr. Gibroy's case*, *Edinburgh Medical and Surgical Journal*, vol. 35.

|| *Transactions of a Society*, vol. iii. p. 50.

In the thirteenth number of the *Dublin Journal of Medical and Chemical Science*, Dr. Evanson gives the particulars of a case, in an infant of one year and one month old, in which the presence, in all probability, of a herring bone in the trachea, or upper division of the bronchial tubes, gave rise to symptoms not only of bronchitis of the right lung, but croup, and symptoms of urgent suffocation. The cough in this case was harrassing and occasionally very severe. The difficult breathing was most intense, and conspicuous, during inspiration; the voice was hoarse, and occasionally stridulous; the surface was hot, and the pulse rapid; and there was much general uneasiness and restlessness. This was the state of the symptoms on the fourth day after it was believed a portion of herring bone had been allowed to slip into the larynx.

After the employment of antiphlogistic remedies, as leeches to the throat, purging by means of Jalap and Calomel, and the use of a solution of Tartrate of Antimony, without alleviation of the bronchitic symptoms, Mr. Crampton performed the operation of tracheotomy, by removing a small slip of the trachea, yet without finding, or extracting the foreign body. Next day, however, the symptoms of suffocation were less urgent; and though the respiration continued laborious, stridulous, wheezing, and at the rate of 70 in the minute, with a copious secretion of thick mucus in the trachea, in the course of a few days these symptoms diminished in intensity, and the discharge became less abundant.

As the improvement proceeded, the wound was allowed to heal, and become closed ; and though the cough remained, and the voice continued hoarse and faint for months, it at length became natural, clear, full, and loud ; while the cicatrix of the wound was so much contracted as to become hardly perceptible.

Though in this case no foreign body was found at the time of operation, it appears that the mother confessed, that, on the fourth night after the operation, when she was removing from the wound the viscid mucus which had collected, she felt something hard by the sponge. A projecting point now began to appear whenever the child coughed ; and the direction of this body seemed to be from the upper part and side of the wound. This circumstance, however, she concealed from the attendants. From the apprehension, she stated, of another operation ; and before morning it projected so much that she attempted its removal herself, and after some force, and the discharge of a little bloody matter, effected her purpose. The body thus removed was sharp, and looked like a portion of herring bone, but somewhat softened, and of a greenish colour. These qualities, however, it lost in drying ; and when presented to Dr. Evanson, it had the appearance of the bone of a herring, or some small fish, though rather less firm than natural.

Dr. Evanson admits that in this case the evidence of the bone having been within the wind-pipe is less complete than could be desired, since it rests solely

on the veracity of the mother. But he observes, in confirmation of the general accuracy of her statement, that while she dwelt much on the manifest and decided alleviation which the symptoms underwent in the course of the day, after this piece of bone was represented to have been removed from the wound and the interior of the wind-pipe, the report of the case, as kept by Mr. Hamilton, (who knew nothing of the woman's story, and remains, Dr. Evanson believes, still incredulous,) shows distinctly, that on the same day a great alleviation took place, and continued to proceed.

In the same number of the Journal above mentioned, Dr. Houston, Surgeon of the New Hospital in Baggot Street, details a very interesting and melancholy case, to which the same objection of deficiency of evidence does not apply. Of this case I shall give an abridged account.

John Clare, aged 29, in the condition of a servant, of temperate habits and sound constitution, had occasion to have the second molar tooth of the right upper jaw extracted in May, 1830. On the first application of the tooth-key, part of the crown was chipped off, and removed from the mouth by the operator. By a second attempt the tooth was started from its socket, but on being loosened from the claw of the instrument, it slipped down the throat, and was not afterwards seen either by patient or operator.

About four hours after, the patient called on Dr. Houston, and presenting the upper fragment, with

the statement now given. He informed him that he felt, after the extraction was completed, a momentary sharp pricking pain at the top of the wind-pipe, followed by a severe fit of coughing, which soon went off, but recurred again several times without any evident cause, and at each time with abated severity ; until after a few hours it ceased to produce annoyance. He complained, however, of a feeling of undefinable uneasiness in the chest ; a sensation of weight in breathing ; and a tendency to draw heavy sighs, which kept his mind in a state of continued inquietude. Occasionally, and at irregular intervals, he coughed up a little frothy mucus, untinged with blood, or purulent matter. He had not, previous to the accident, been subject to cough, or any other affection of the chest ; and all these symptoms, both the dentist and himself agreed in ascribing to the passage of the tooth down the throat.

In a consultation held twenty-four hours after the accident, the following stethoscopic signs were recognized.

“There was a mucous rattle in the lower part of the trachea, audible even to the naked ear, but very distinct when heard through the stethoscope. Both sides of the chest gave a perfectly and equally clear sound on percussion ; but notwithstanding their similarity in this respect, there was a marked difference in the intensity of the respiratory murmur, the sound of the air entering into, and expanding the right lung, being obviously more feeble than that heard at the same moment in the left. There was, like-

•

wise, under the right clavicle a slight sonorous rale, a deviation from the natural sound of breathing not discoverable in any part of the left lung. These signs were fixed, and not modified or removed, by any alteration in the position of the body ; nor by causing the patient to respire with violence, or to take a full breath."

It is unnecessary to give the conflicting opinions entertained as to the presence of a foreign body in the windpipe. The man was placed in the hospital; and after passing successively through the several stages of bronchitis, pneumonia, and pleurisy ; first of the right, and then of the left lung, expired on the eleventh day after the accident. Upon inspecting the body sixteen hours after death, the following was the state of the organs of the chest.

The lungs on both sides presented their natural fulness, without collapse on either side. The right lung adhered to the pleura costalis every where, except behind, where a quantity of thin bloody fluid lay between the pleuræ. The left lung adhered generally. The lymph, interposed between the pulmonary and costal pleura on the right side, was considerable in quantity, firm, and opaque, and evidently of several days' duration ; that in the posterior region of the chest especially, was, for a space of seven or eight inches, abundant and tenacious. The lymph forming the adhesions on the left side was smaller in quantity, and presented the appearance of a thin semigelatinous layer. All the adhesions were soft and easily broken ; and when removed

the pulmonary pleura was seen very red and vascular, and on the right side livid.

The substance of the right lung was dense and indurated in every point; its tissue, nevertheless, readily gave way under the finger; and sections of it, exposed surfaces discharging much dark fluid blood and serum. The substance of the left lung was less heavy and engorged, but exhibited marks of intense inflammation.

Upon slitting open the wind-pipe from the larynx to the lung, the tooth was found lying in the right bronchial tube, about one inch beyond its commencement, with the fangs directed towards the lung, and the broken surface of the crown towards the larynx. It lay loose or unattached, and was readily removed when caught between the points of the scissors. The broken surface fitted accurately to that of the crown, as presented to Dr. Houston by the patient.

The mucous membrane of the air passages from the larynx to the smallest branches of the bronchial tubes in both lungs was swelled, softened, and of a deep red colour, as if minutely injected; and the bronchial tubes were filled by muco-purulent fluid round the tooth, but without abscess or breach of surface in the vicinity of the spot where it was lodged.

The following remarks are believed to afford another example of such a case:

Mr. William Holland, aged 33, has been in this country, for 14 years; is short and strongly built;

has been employed since the time of his arrival as an assistant to an Indigo Planter ; and has enjoyed good health up to the period at which he was attacked with the complaint which is the subject of the following remarks. He had never any disease in the lungs, nor had his family suffered from such diseases.

• He stated to me that while eating fish at breakfast, on the morning of the 8th February 1838, his wife, who had just been confined, and was in the adjoining room, suddenly called out for something. He got up, and ran to her assistance, while swallowing a mouthful of fish hurriedly, and as he most probably called out that he was coming ! He says he felt that he had swallowed a bone, and ate several pieces of dry bread, in order to get rid of it. He did not, however, succeed in this ; but the uneasiness in the throat slowly subsided, and ten days afterwards he felt for the first time a pain in the chest ; which he could not at the time attribute to any cause. The following is the subsequent history of the case in the patient's own words :—

“ I suffered from a severe pain in the chest, which caused me to bend my body down in walking. On consulting my Physician he desired me to apply a mustard plaster to the chest, and to take a warm bath. I did so, but the pain continued.

“ Some few days after, the pain left me, and I had then a slight dry cough. My breath was very disagreeable, and I occasionally threw up a small quantity of greenish watery phlegm, which was very fetid.

“About the 18th I arrived at Jessore very ill, and was confined to my bed. I then took an emetic, which caused me to vomit a prodigious quantity of the aforesaid matter, and my medical attendant afterwards administered 20 grains of Calomel. The cough was increased, and at times I threw up phlegm, which resembled the white of an egg beaten up, but without smell.

“A few days after, I felt a severe pain in the right side which caused a difficulty in breathing, indeed I could not speak without pain. Dr. B. bled me in the right arm, and I then felt a little easier—a short time after this, I became delirious. Perhaps I ought not to omit that whilst the fever was high, it appeared to me that I was continually tormented by two beings, the one of immense stature, the other a Dwarf; and that, having had a spear lodged somewhere in the shoulder, and the shaft broken off, the dwarf tried to pull it out against the grain, whilst the Giant acted as my protector, and endeavoured to prevent him. During the combat my agony was dreadful, but when the giant obtained the victory, I coughed with greater facility, and the phlegm was more abundant; if on the contrary the Dwarf had the upper hand, the cough was more severe, and the phlegm much less than in the first instance. Fever or no fever, this continually haunted me for the space of six months.

“In the mean time Dr. B. gave me all kinds of medicine to no purpose.

“About July I began to spit blood, I therefore started for Calcutta, and my Medical attendants

applied several Blisters in succession to the right side.

“A few days after my arrival, and during a violent fit of coughing, I felt a hard substance in my mouth. On examination, it proved to be a Fish Bone about one inch in length, and pointed at both extremities.* It was half broken in the middle, and I presume the middle part must have come foremost. I was overjoyed at thinking the bone was the cause of my illness, and imagined that I should then recover. I mentioned the circumstance and showed the bone to Dr. S. who treated the circumstance lightly. This surprised me. Dr. S. then examined the condition of the lungs, and stated that the lower part of the right lung was destroyed; in fact, that I had only one lung and a half.

“A few days after the bone had appeared, I vomited blood once or twice.

“If I swallowed any liquid in small quantities, a fit of coughing succeeded, but this was not the case if swallowed in large quantities, that is, as much as could be contained in the mouth at once. It appeared to me that there was a hole, or wound in the throat. I could sleep no where but on the ground. If any circumstance caused laughter, I always felt great pain with a sensation as if I was going to be suffocated. After a consultation of Doctors, I resolved to proceed to Singapore. Being obliged to climb the ship's side, I vomited an immense quantity of blood in stepping down upon deck. During the

* See the drawing and the bone herewith forwarded.

passage I vomited blood several times, but in smaller quantities. I invariably slept upon my chest or left side, tried baths of salt water, and kept low diet. I occasionally took 30 drops of Laudanum.

“During the passage my bowels were very open, and also a short time before sailing.

“At Singapore I recovered a little strength. Bowels always in the same state. Dr. M. prescribed Creosote Pills which I took, but neither this, nor any other medicine proved of much service. Whilst at Singapore, my feet and legs swelled during the night; this swelling, however, used in part to leave me in the day time. At the expiration of a month, and during the time that my legs swelled, my appetite was most voracious. I ate of every thing, and in large quantities; but invariably vomited afterwards. At one time I applied 30 leeches on the right side, and at another 40 on the chest.

“During the passage to Calcutta in December, I several times vomited what I supposed to be pure matter, but as it was at night, I could not examine it. I derived no benefit from the trip.

“January 1st 1839.—I was now reduced to a mere skeleton. The cough still continued, and at times I threw up small portions of matter in which were decayed particles of what I supposed to be the lung. This was very fetid.

“Several blisters were applied to my right side, and a seton was formed a little below, where the blister had been placed. I had now a severe attack of Pleurisy, the pain of which was dreadful; and

when I attempted to cry out, was agonizing. I applied 4 large leeches on the left breast which took away the pain. My face had become discoloured; that is, there were dark patches on it here and there.

“I twice or three times vomited immense quantities of blood, and thought I should die of suffocation each time: my breathing being difficult, I generally passed the nights in an easy chair. The walls of the chest were then very much depressed in figure, and not so large as natural.

“I continued in this state till the end of September, when having thrown up a quantity of pure matter, I had an opiate which caused me to pass a very tolerable night, the *first since my illness*, and in the morning I felt greatly relieved. •

“I continued taking an opiate every night for about a week. The cough left me as suddenly as it came; I ceased spitting, and rapidly gained flesh.—In December I was almost as well as I am now; I sometimes feel a slight twinge in the right side, but nothing of consequence.”

Mr. H. was under my care for a considerable time on his return from Singapore, when he was reduced very much in flesh, had hectic fever, a distressing cough, copious expectoration of purulent matter, of a most fetid nature, and often mixed with blood. Paliative means were employed to assist nature in the evacuation and healing of the abscesses, and under the influence of a young and good constitution the cure was accomplished.

I again carefully examined Mr. Holland in Febru-

ary, 1842. He then held a situation in the Hooghly College, was an active teacher, and was accustomed to speak loud for many hours daily, which he did without much fatigue, or uneasiness in the lungs. I examined the chest by measurement, and then by the stethoscope. The right side I found more than one inch less in circumference than the left, and the same in depth (see accompanying drawing). I found the left lung, and the upper part of the right lung, quite healthy; but in the lower part of the right lung, the sound was very obscure:—shewing that the lung remained partially hepatized, and nearly impervious to air. In other respects Mr. H. is quite well, has no cough, and feels himself equal to as much work as at any former period.

One of the Medical Gentlemen who attended Mr. H. was not of opinion that the severe symptoms were produced by the irritation of the bone in the air passages. (See note by Dr. Stewart at the end of this Essay.) After considering the whole circumstances of the case, I believe that the dangerous symptoms were produced by this cause.

1. Because the disease commenced soon after the bone was swallowed.

2. Because the irritation of the bone was quite sufficient to produce all the symptoms; and that it affected the right bronchus which is a more direct continuation of the trachea than the left.

3. Because there was no other attributable cause. Mr. H. had no disease of the lungs, before the introduction of the bone; and the disease declined, and

subsequently disappeared on the bone being expelled, after an extensive destruction of the organ ; proving the strength of his constitution, and the natural healthy condition of the lungs

I have forwarded the above remarks for the consideration of this Society from the case affording, I conceive, some peculiarities of practical importance. The following may be considered the proper treatment in such cases .

1 To use all practical means to remove foreign bodies lodged in the windpipe ; as they have such a tendency to produce dangerous inflammation of the mucous membrane of the trachea and bronchi, which often extends to the lungs

2 These means are the use of emetics, &c , and mechanical instruments Should they prove unsuccessful Laryngotomy or Tracheotomy must be performed, to enable the practitioner to reach, and extract the foreign body. This may be promoted by placing the patient in a prone position.*

3. To employ the usual means to allay inflammation of the air passages by blood-letting, general and local, and by occasional emetics, antimonials, and counter-irritants. By these means nature may remove the cause, if it is still present, heal up the injuries done to the organ, and accustom the system to act with the loss of part of the organ.

* As was done with success in the case of Mr. Brunel, see *Lancet* for July 1843.

Note by Dr. D. Stewart.

Mr. Holland came under my care in July, 1838, on his return from Jessore. He appeared in the last stage of hectic fever from pulmonic disease, and suffered also from chronic dysentery. He remained in Calcutta for about six weeks, supported by broth and wine; he took opium, Acetate of Lead, Sulphate of Copper, Sulphuric Acid, Quinine, &c. &c.

The purulent expectoration and dysenteric symptoms were thus moderated, but he several times nearly expired from hæmoptysis. I had but faint hopes of ever seeing him after getting him on board ship. With regard to the *fish bone*, I can only say that he never mentioned the occurrence of the accident, nor complained to me of its irritation at any time during his illness until the day that he coughed or spit out the bone. I do not recollect his mentioning the length of time which seems to have elapsed between the accident and this occurrence. My own impression was that he had that morning swallowed it, and I of course considered the circumstance trivial.

D. S.

ON
CONGESTIVE TYPHOID FEVER.

BY
KINLOCH W. KIRK, M. D.
ASSISTANT SURGEON, BUNDELKUND LEGION.

READ 12TH OCTOBER, 1844.

Preliminary Remarks.

GENERALIZATION so necessary in every branch of science, is not less so in the practice of medicine, by aiding the memory, grouping together important truths, and guiding us in the treatment of disease.

I do not, therefore, apologize for attempting to bring into one natural family, a number of diseases, very dissimilar in external appearance, but I hope to show, arising under the same condition of the system, supported by the same agency, and yielding to the same remedial means.

The sentiments here offered are advanced with every feeling of deference, and though they call in question the value of certain rules in practice; they oppose no received physiological principle, and may on this account draw attention to this interesting subject. It is, however, but justice to myself to say, that, situated as I am, at a small remote station, and

liable to be moved about, I have no means of deriving benefit from the testimony of authors, except those whose works form my own necessarily small collection ; and this may account for some deficiencies, as well as inaccuracies, which the reader will observe, in the course of this communication.

I have long felt under the conviction that several of the diseases returned by medical officers under different heads, are essentially one and the same ; that is, that they arise under the same condition of the system ; and are excited and supported by the same constitutional causes.

Continued observation has convinced me of the truth of this ; and given me good reason for extending the group considerably beyond what my first impressions were.

At the termination of the rainy and beginning of the cold seasons, congestive typhoid fever is abundant all over the country ; and may be found in every hospital, civil and military ; invaliding and destroying more men than all the other diseases put together. The cognomen chosen to represent it is not altogether new. Twining and Martin mention congestive fever of the cold season ; and Dr. MacNab, in vol. viii. pt. ii. of the Transactions of the Medical and Physical Society, uses the very term which stands at the head of this article, with reference to the disease which affected a gang of prisoners, while working on the Grand Trunk road.

Twining describes a number of symptoms common to Congestive Typhoid Fever, omits others which I

believe essential, and mentions some which are accidental, but the chief feature in his description, as well as in that of the other gentlemen, appears to be more or less head affection, and its consequences, the fever being slow and insidious at first, but differing from the low fever we are describing, and requiring to be treated by powerfully depleting measures, as blood-letting, and the free use of calomel and purgatives.

Twining's and Martin's Congestive Fever of the cold season is therefore essentially different from the one, which is the subject of this paper ; for no treatment is so speedily destructive as blood-letting, the free use of Calomel and drastic purgatives, in Congestive Typhoid Fever. .

This cognomen I have chosen because it gives an evident idea of the nature of the fever, which is essentially typhoid ; and when long present, the organs in the interior of the body, as well as the component parts of several of the joints, become seriously deranged both in function and structure.

Dr. Alison mentions three varieties of Typhoid Fever, and the first variety possessing the whole of the essential symptoms of the disease I am now describing, I shall use his own words to represent it. "The most obvious, and urgent of the typhoid symptoms are those of mere debility of all the vital actions, soft compressible pulse, dry foul tongue and lips ; deficient or easily depressed heat of surface, and extreme muscular debility, shewn in the voice and attitude ; as well as in the muscular movements."

General features.

Congestive Typhoid fever consists essentially of mere debility of all the vital organs, with slight, obstinate, and often ill-marked fever; a paroxysm occurring generally daily, but it may put on *any* periodic character, or be irregular in its attacks. It may be caused by any circumstance which causes fever in general. Miasmata, inanition, fatigue, local irritation, unwholesome food, the sun's influence on the head, and mental anxiety may each give rise to it, but it most frequently succeeds another fever. By way, however, of illustrating a principle which will be recommended by and bye, in the treatment, the exciting causes may be advantageously reduced to three, viz. miasmata from without, miasmata* generated within the body, and local irritation.

I conceive that no principle in physiology is violated, by the idea that a poison may be generated within the living body, by the chemical influence of the component parts of the food taken into the stomach, and even of the blood, and other fluids on each other, whereby the very same elements are disengaged, which when escaping from putrescent animal and vegetable matter, cause fever by being inhaled. We know that fevers are contagious at times, and that persons who attend the sick contract the fever, and communicate it to others, by the exha-

* As the word "*Μίσµα*" signifies pollution or contamination, without implying its source, I hope I shall be pardoned for using it in the sense here employed.—K. W. K.

lation of their lungs and skin. But whence is this exhalation? When the powers of life are weakened, chemical to some extent must overrule vital agency, and the same process may obtain, which takes place in the decomposition of a dead body, at least to an extent sufficient to poison the patient, and originate disease in his attendants. Miasmata contain the only poison we know of which has the effect when applied to the body of causing fever; and it is highly probable that there is no other poison, which when applied to the body, can cause it; excepting the elements, in certain combinations, which are disengaged in putrescent animal and vegetable matter and which may be produced chemically.

When any circumstance disturbs the digestion of a meal, this principle becomes quite apparent. A person dining in the evening, takes more beer than he is accustomed to, and perhaps a cigar extra, will awake in the middle of the night with a burning thirst, a parched tongue, and hot hands and feet, and will drink a great quantity of water, which gives relief to his symptoms and he again goes to sleep. Next morning he is drowsy, has a head-ache, and when he sits down during the day, is apt to fall asleep in his chair. Spirits taken with a meal have the same effect if too freely used. But this only follows where animal food has been taken with the stimulant. The rationale is that as spirituous, vinous, and malt liquors, act as stimuli to the brain and nervous system;—and as, when these are under the influence of any excitement or irritation, digestion does not take place, the

food must remain as it was swallowed, or be altered only chemically ;—and in such cases an emetic given the next morning, would bring up the food, as it was taken the evening before.

The same effects exactly follow, where a person takes animal food for breakfast, and exposes his head afterwards to the influence of the sun. At first he feels merely exhausted, afterwards he becomes thirsty, drowsy, and feels an oppression and tenderness in the head. These are but the slightest symptoms, for the same cause may give rise to severe fever and head affection.

Attacks of this kind from eating and drinking, arise it is said, from sympathy between the stomach and the brain, and so the relation between errors of diet and head-ache is thus readily accounted for. A more satisfactory explanation is that which accounts for the whole train of symptoms, arising in the direct application of a poison to the brain ; which is being carried in the circulation, and which is derived from the food, that has remained so long in the stomach, that it has become altered, chemically ; so that the elementary component parts are disengaging themselves, as is the case with putrescent vegeto-animal matter ; and Sulphuretted Hydrogen, probably combined with Ammonia, producing the same poisonous effects as if inhaled from without.

Indeed there is nothing to prevent our belief, that, the presence of water and air, with food taken into the stomach, or with any secreted fluid retained within the body, must in time, cause putrescence, in

the same manner as if such fluids were out of the body, and this law holds good with every substance, solid and fluid, the component parts of which do not actually form a portion of the living body. . . .

Liebig tells us that air is swallowed with the food abundantly, being mixed with it in mastication ; but at the temperature of the human body, we know that water and all secreted fluids contain air in considerable quantity : and if we fill, and carefully cork a bottle of milk, leaving no space between the cork and the contents, and keep it warm, the milk will spoil in a few hours—because there is air in it ; and every secretion will in the same way spoil, whether in or out of the body, as there is nothing in a living animal hermetically sealed.

To dwell on the deleterious effects of sulphuretted hydrogen, on animal life, would be wasting time. Physiologists and chemists are agreed as to this evil, and are moreover agreed as to its being the principle in malaria, on which its poisonous effect depends.

Like every other poison, however, men being accustomed to its influence, cease to suffer from its effects in any evident degree, and an impure atmosphere, unwholesome food, or food taken under circumstances where its digestion is disturbed, or prevented, may all be borne for a time. But the pale face of the pauper, from the close and ill-ventilated settlements of a large city, as well as the fœtid breath, and slouching countenance of the corpulent glutton, sufficiently show that the functions of life, on which their health, comfort, and happiness all depend, are materially deprav-

ed ; and there is a point beyond which nature can suffer no longer—evident disease surely comes—and the patient is destroyed by inflammation, or typhoid fever, in some more or less acute form. Thus far have I digressed by way of describing a principle, which I believe to be a more common cause of fever than any other ; and one which has been quite overlooked by authors, as far as I am able to ascertain ; but this subject we recur to again, with reference to our aim in the treatment of congestive typhoid fevers, and in the meantime return to the general features which characterise that disease.

General features continued.—Congestive Typhoid Fever produces at first no derangement in the functions of life, except that arising from general debility of all the organs, some of which from local determinations, become ultimately affected.

Among the Natives of India, when the disease has not arisen in an acute form of fever, but has lasted without much severity, for a considerable time ; there is often present a brown mark on the anterior part of the face ; like two triangles, very much of the appearance of petechiæ, with their apices towards each other or united by a line of the same appearance, which continues from the one to the other, over the nose. I do not remember to have seen this mark in any, but those who were either suffering, or who had lately suffered from the complaint.

Its severity is in every degree, it may last for many months, the patient complaining merely of general weakness, and having a slight heat, and profuse per-

spiration in the night, without derangement of the vital functions, but going about his daily vocations without material inconvenience. This slightest degree is often manifest in such as reside in ill-ventilated, and badly drained localities, in large villages, about the end of the rainy, and beginning of the cold seasons.

In them the dirty lemon-coloured complexion spoken of by Martin, as occurring in spleen disease is always present, whether or not there be any affection of the spleen. The tongue and mouth and interior of the eyelids are bloodless and pale-looking, and the skin shines usually as if moist with perspiration. Sepoys in this state, come sometimes to hospital, and their only complaint is, that they are "stricken with weakness, and fall down at the double," and complain of no definite symptoms of disease, but, on being interrogated, always confess they have a profuse sweating every night, or sometimes a burning of the hands and feet.

When a little more severe, the febrile paroxysm comes on in the afternoon or evening. Indeed it will generally be found that the severity is according to the earliness of the attack, and when the fever comes in the forenoon, it is usually severe and well marked, but if in the night, it is so indistinct that the patient will hardly allow it, to have been present at all, though he will confess to a profuse perspiration.

In cases of long standing, where the strength of the patient is much reduced, and all his vital organs so debilitated, that the functions of life are very inade-

quately performed, there may even then be no very marked features of disease present, except what consist in emaciation, exhaustion, and debility. In such a low condition of the body there are sometimes no other marks of fever than an unequal distribution of heat.* The head, chest, and abdomen, being unduly warm and dry to the feel, while the arms and legs are quite cold. The temperature of the head and trunk may continue slightly raised for many hours, and then subside, by the oozing out of a moisture, and a feeling of the greatest exhaustion.

On our finding a patient in this state, and interrogating him as to whether he has fever, he says, "no!" but the application of the hand to his chest, disproves his answer, and it should be recollected always that the equilibrium of the circulation may be disturbed as to the situation of organs or members forming a portion of the body, as well as to the time where the disturbance takes place, in either case constituting fever.

For instance in ordinary fever cases, a paroxysm comes, affects the patient for a time, then subsides and leaves him comparatively well; in other cases, like the one here mentioned, the head and the trunk may be hot and extremities cold, or *vice versâ*, the extremities may be burning hot, especially the hands and feet. Sometimes also the knee and ankle, and elbow,

* Whenever discharges take place, febrile symptoms lessen, or sometimes disappear, whether caused by medicine, in acute cases, or take place spontaneously in cachectic and typhoid fever, in the form of colliquative diarrhoeas, sweats, &c.

and wrist-joints, in which severe paroxysms of pain take place, without a corresponding rise in the temperature of the head and trunk.—In all such cases, however, the balance of the circulation is disturbed, and all deserve the name of fever.

In damp and jungly localities, the affection is often complicated with more or less head affection and biliary derangement. Exposure to the sun's influence, with that of malaria, is the cause of such accompaniments. These symptoms usually arise, during intervals of hot and dry weather, in the rainy season, in damp localities, and are adjuncts which hasten very much the course of the disease, and add greatly to the danger of the patient.*

* I was at Gorruckpore with the 41st Regiment Native Infantry at the commencement of the rains of 1841. The season was sickly, and all who were not actually in hospital or convalescent, had profuse night sweats, yellow shining skins, and great debility, during which Spleen, Rheumatism, Erysipelas, &c. took place. In other words they had congestive typhoid fever. The power of the sun caused such men sometimes to drop down insensible at their duties, and they were brought to hospital with the head and chest very hot and the extremities usually cold, and contrary to what is said in books, there was little or no pulsation at the wrist. The dissection of some prisoners with Dr. Brander, the Civil Surgeon, showed the pathology of the complaint. In them the cellular tissues were of a yellow colour, from the absorption or rather non-secretion of bile. The venous sinuses of the Dura Matter were tinged with blood, and red points very numerous on the brain being cut into. The treatment consisted in pouring cold water slowly over the head till the heat was reduced, and I had sometimes to open the jugular vein, as no blood would flow from the arm, and gradually as the blood flowed pulsation became more and more distinct at the wrist. This is the severest form of head affection.

The severest and most dangerous cases of congestive typhoid fever, are those in which the disease is always present in a greater or less degree. The skin hot, (though towards the termination of the disease it usually becomes cold,) dry and rough; the patient rapidly becoming emaciated, is thirsty, restless, and excitable; fretful if disturbed, often delirious. He sinks into a stupor. His motions pass involuntarily, and he dies.

In that condition of the system produced by the febrile influence spoken of, a number of diseases manifest themselves, very different as to the situation and function, of the affected organs; but making allowance for these, there is a similarity in the manner they become affected. These affections may therefore be considered a natural group, the members of which arise and are supported by the same general ultimate causes.

The immediate exciting cause of these local affections is doubtless a poison circulating in the system, and generated within it from the circumstance that the various organs of the body, debilitated and exhausted by low fever, are incapable of performing their functions adequately to the support of health; and are unable to eliminate from the system, the substances which in health are entirely separated from it. A great portion therefore of the animal matter, which nature has appointed, the kidneys, skin, lungs, and other organs to separate and reject, must necessarily be retained, and exert a highly deleterious influence.

Diseases which arise under the influence of Congestive Typhoid Fever.

The diseases above alluded to are affections of the Spleen and Liver, Chronic Dysentery, Dropsy, Chronic Rheumatism, Chronic Bronchitis,—Erysipelas, Phlegmonoides and Gangrenosa, Chlorosis, Amenorrhœa, Abortion, Scurvy, Inflammation of the Cornea, Gangrene, Emaciation, some forms of Paralysis, and other diseases of debility. That some of these affections exist idiopathically very often, I do not deny; but all of them may be found to arise in patients under the influence of Congestive Typhoid Fever; and when they do, they present features, widely different from those of the simple uncomplicated inflammation, which affects the various

Relation between these and low fever.

In all complaints which arise under the influence of Congestive Typhoid, the blood possesses the same remarkable pathological characters. It is less glutinous than natural, coagulates less firmly, the serum is often of a greenish or reddish colour. The cruor small in relative proportion; sometimes not cohesive, and always less so than is natural in healthy blood. These physical properties can be readily seen, where death takes place in protracted cases, for the small quantity remaining in the large vessels is always thin, dissolved and watery.

It is on account of the deficiency of fibrine or

albumen in the blood (for they are the same) indicated by these characters, that nature is incapable of repairing local injuries—of throwing out coagulable lymph into wounds, and of causing ulcers to granulate.

Women in this condition do not menstruate, and those who assume it, while pregnant, necessarily miscarry ;—and this is the constitutional cause of abortion. Because albumen, which is the most essential principle for the support of animal life is deficient—and inadequate to support the healthy action and repair of the organs of life in the parent ; much more so, to support those of a second individual.

During the presence of any fever, digestion ceases, and the body lives, for the time, on itself. The functions of life therefore, that become first and most evidently affected, are those of assimilation and absorption. The lymphatic vessels and glands, take extra labour on themselves, and excepting these and the bones, the whole body becomes wasted. During the long continuance of a low fever, the lymphatic vessels and glands become much enlarged. And if we meet with a phagedenic ulcer in the groin and lower part of the abdomen, arising from neglected bubo of daily increasing size, these glands at the bottom of the sore will be found partly enlarged. This is a common enough case among the poorer natives of India.

When it happens in long continued low, slight fever that the powers of life become so undermined, that even this increased action of the lymphatic

system cannot be supported, the glands themselves either suppurate or become gangrenous with the adjoining tissues, characterising that form of typhus which bears the name of plague.

Among the curses pronounced by Moses on the children of Israel as a consequence of their breaking the Law, we may find in the 28th chapter of Deuteronomy an account of those which he declares will attach to their persons. These are so like some symptoms we have enumerated that we may be pardoned for mentioning them.

“Cursed shalt thou be in the fruit of thy body.” “The Lord shall make the pestilence cleave unto thee.” “The Lord shall smite thee with a consumption, and with a fever, and with an inflammation, and with an extreme burning, and with the sword,” (the marginal reading is “drought,” probably meaning thirst,) “and with blasting and with mildew.” These, as attaching to the person, most likely mean carbuncles, and cutaneous spots, as petechiæ, &c.

“The Lord will smite thee with the botch of Egypt, and with the emerods (hæmorrhoids), and with the scab, and with the itch whereof thou canst not be healed.”

“The Lord will smite thee with madness, and blindness and astonishment of heart.” “The Lord will make thy plagues wonderful, and the plagues of thy seed, even great plagues, and of long continuance; and sore sickness, and of long continuance.” “Moreover, he will bring upon thee, all the diseases

of Egypt, which thou wast afraid of, and they shall cleave unto thee."

* The curious may see among these sentences much which characterizes the diseases of modern Egypt; and even of the countries of southern Europe—when pestilence steps in on a filthy and a famished population.

As the condition of the blood just *noticed*; muscular debility, general weakness and exhaustion of all the organs on which life and health depend, with a depraved state of their secretions, and the presence of fever in some shape or other, are evident in all the affections above referred to, the idea of grouping them is I conceive free from impropriety—and this general condition of the system, which these features characterize, should in medical treatment be our point d'appui.

Our first object being to benefit the general condition of the patient, and this is not to be done as far as my experience goes, as long as the presence of fever continues: our whole efforts, therefore, should first and foremost be directed towards causing its removal; and until we succeed in this, we cannot in any way benefit local symptoms. Under the continued influence of congestive typhoid fever, the powers of life gradually give way, more or less rapidly; unless it be cut short, and put an end to, by the benign influence of some circumstance (often not a very evident one), coming accidentally.

Accidental circumstances often stop the progress of the disease.

Before the fever has made any very marked inroads on the constitution, a change of air or of diet, or the natural changes of the season often put an end to it, and the patient has no idea of the cause. While, on the contrary, when the disease, severe or long-continued, has evidently undermined the vigour of all the vital organs, and especially when despair preys on the patient's mind, from the gloomy apprehension that the enfeebled flame of the vital lamp will soon cease to burn,* the obstinacy of the disease is very great, the sufferers becoming heedless of comfort, morose, and fretful if disturbed, and the generally slight, and often irregularly diffused heat, perspiration, and thirst, which mark the ill-defined febrile paroxysm, are to such a patient, as depressing in their immediate, and as dangerous in their ultimate effect, as a more severe, and better marked paroxysm, to a stronger man.

The following may be regarded as a general maxim:—As the danger and injury arising from a severe paroxysm of fever is to a strong man, so are those of a slight ill-marked paroxysm to a weak man; not that the immediate effects are similar, but that the deleterious influence of the fever, and its ultimate evil consequences on the system generally, are as

* “And thy life shall hang in doubt before thee, and thou shalt fear day and night, and shalt have none assurance of thy life.”—*Deuteronomy*, xxviii. 66.

much connected with the weakness of the patient, from former attacks, as with the severity of the paroxysm itself.

The duration of a paroxysm is much more to be dreaded than its severity, and however slight, however ill marked it may be, it has, when long continued, a most powerfully depressing effect on the patient. As we have already said, during a paroxysm, gastric juice is not thrown out, and digestion ceases. The body then, besides losing all support from without, suffers materially from chemical change taking place in whatever is contained in the intestines. It is on this account that it is so necessary to unload the bowels, very often, during fevers, even where no food is taken. The most deleterious effects follow neglect of this.

I have said that digestion does not take place during a paroxysm of fever, I should further mention that for a longer or shorter period, both before the arrival, and after the cessation of the paroxysm, it does not take place. I think I have noticed that the more severe the hot stage of a fever is, the longer are these periods. During a remittent or continued fever, however ill marked its phenomena, this function entirely ceases. Under such circumstances drinks only should be given, and these freely. They should contain generally an acid, which besides allaying thirst, and being grateful to the patient, neutralizes the ammoniacal productions, the spontaneous formations of the substances retained, in the intestines. From farinaceous food, becoming sour if long re-

tained, it is most fitting for fever patients, because, if not digested, it may act as an acid ultimately.

When we take these circumstances into account, it will be evident enough, that no fever, however slight it may be, can be looked on, as a thing of little consequence, and considering that in its least evident forms, in a debilitated patient, it is often the parent of a host of evils in the shape of local affections, both painful and formidable ; it must deserve all our care and attention, and the best directed treatment to meet it, and to enable us to wrestle to advantage with it.

Various circumstances have convinced me of the error of directing our practice, immediately, to the removal of chronic inflammations, enlargements of the spleen and liver, chronic diseases of the joints, and the other affections already mentioned, which arise under a cachectic condition of the body. They never arise bearing the characteristic features which I shall describe by and bye, until the morbid condition alluded to becomes prominently marked—it is therefore clear enough they cannot be the cause of that condition. •

Again, the characters which these local diseases present, are widely different from the simple idiopathic, and uncomplicated inflammation in the organs when the system is not in a cachectic state. Moreover, medical treatment, which is exclusively directed to the local affections, is not of use. I have never seen it of the smallest service.

No improvement can take place till the fever ceases.

No improvement ever takes place in the system generally, according to my experience, without a marked amendment in the local affections soon following, and if we examine those medicines, which are of established reputation, in the cure of such diseases as spleen, &c., we find that their beneficial effect must consist chiefly, if not entirely, in the restorative and tonic influence, which they exert on the whole system, rather than on any organ, or class of organs.

A low fever is always present, more or less distinctly marked, in every cachectic case, and though so slight and apparently so unimportant as often to mislead the medical attendant, as well as the patient, it must be sought for, and found, and contended with, though it be but a nightly flush, or a perspiration, or an irregularly diffused heat, still it shows that the balance of the circulation is disturbed; but be it what it may, manifest or indistinct, it is the cause of the cachexia, it is the cause of the local affections, and it must be stopped before the patient can improve; and observing all the confidence, which the observation of a great number of cases, enables me to speak with, I may say, that as naturally as we may in medicine promise ourselves a consequence, by first securing a cause, as naturally will amendment in general health, and in the local diseases, follow the discontinuance of fever.

On this head I am able to speak very positively,

for I have seen the truth of what I set forth, in many well marked cases among the natives of India, and in several among Europeans, who were reduced to the lowest state of debility, in which any marked error in treatment must have been of fatal consequence.

- In the very general sickness which prevailed at Gorruckpore at the end of the hot season of 1841, arising in consequence of the long dry and very hot intervals which occurred between the showers, added to the effects of the exhalation from the surface of the extensive jheel which bounds the cantonments, fever prevailed, chiefly of the tertian type. Nearly every native in the Regiment which was then located there, (41st Regiment, Native Infantry) became more or less affected, in some measure, by exposure to these causes.—Spleen followed abundantly, besides cases of Erysipelas, Gangrenous sores and diarrhœa.

The first severity of the fever, in each case, soon abated in hospital, and the attacks would discontinue for a short time, convalescence, however, did not take place; and to the first well-defined febrile paroxysms would succeed, others not less destructive, but of a more insidious character, marked only by slight heats and perspirations, under the influence of which, muscular weakness, emaciation, and local congestions, came on. Wine, bark, iron, and other strengthening medicines were freely given, with the view of supporting, and, if possible, improving the condition of the patient, and of reducing the size of the enlarg-

ed spleen, but whatever was the beneficial influence on the organs of digestion, I feel most fully convinced that they were of no benefit in relieving the spleen or any other local affections until the fever had ceased to recur.

The Major General commanding the Division, as well as the commanding officer of the Regiment, agreed with me as to the expediency, of sending a number of convalescents to Azimgurh, and a detachment of about sixty men were sent for the change, the distance being five marches. By far the greater number lost their fever immediately that they left Gorruckpore. From that time their spleens decreased in size, and their general health improved, and from among these men, a party was soon selected to share in the station duties with a detachment from the same corps. Fresh numbers of weakly men were sent from time to time to Azimgurh, and from the detachment, the healthy men, in excess of the number required for station duty, were sent back at intervals to Gorruckpore.

This arrangement answered well for a time, but afterwards the weather became sultry, the showers partial, and insufficient to relieve the close oppressive feeling of heat. In many fever returned, spleen and other cachectic affections immediately followed.

Such evidence I should think is much more than ample to show that fever is *always* the precursor, and the cause of spleen and cachectic diseases, and that whenever we can succeed in putting away the fever and keeping it away, these local symptoms

will disappear. I mention the case of the 41st Regiment Native Infantry, because it is a strong corps, and of the 1000 men who muster under its banners, and who were with few exceptions, all more or less influenced by the fever, there was not a single exception to what I have stated above.

There are two circumstances which tend to militate against the idea here set forth; the first is the impression, that fever is not necessarily present, in advanced cases of spleen: the second, that if there be febrile disturbance present, it is sympathetic, and caused by the constitutional effects of the diseased organ. In regard to the first, I may say that I have already sufficiently disproved it. I always seek for the fever, and always find it, in some shape or other. The second circumstance is to a small extent true, though we cannot make the fact which it involves, a ground on which to establish a principle in clinical medicine. That the irritation arising from a diseased organ, from severe injury, or local pain, may give rise to febrile disturbance is what every medical man well knows, and this is just as true in spleen, or in chronic disease of a joint, as in any other case. It is therefore clear, that as every paroxysm of fever tends to support the enlargement of the spleen, and as the irritation of the spleen tends also to the continuance of the fever, the two must mutually support each other: but it should never be out of mind, that the fever was the cause of the access of spleen, and is the cause of its continuance, whereas the

presence of spleen only renders a recurrence of fever more liable, but by no means certain.

As well might we attempt to stop the bullets of an enemy, in their progress through the atmosphere, instead of silencing their batteries, as to rely on the local treatment of local symptoms, by way of saving a cachectic patient.

Congestive typhoid fever in the lower animals.

I have noticed among dogs and horses, that congestive typhoid fever is very common, especially with the former, for the disease called "distemper" is neither more nor less than fever of a typhoid type. It recurs daily, with heat in the nose and feet, and if it continue long a running commences from the eyes and nose of muco-purulent matter, the dog wastes, sleeps on damp ground, and dislikes his food. His spleen becomes large, gums spongy, teeth loose, and the glands of the face and neck become swollen and suppurate. He loses the power of his hind legs, and if there be any head affection, death comes speedily. In dogs the disease is caused by putrid animal food, and the want of some farinaceous diet; occasionally, a close confined atmosphere in a dirty damp locality, the power of the sun, starvation, and want of exercise.

As horses eat no animal food the disease is less marked; the vegetable and farinaceous food they eat tending to correct the complaint. Filthy, small ill-ventilated stables in a low place, and grass scraped from the sides of swamps, towards which animal and

vegetable matter has been drained, are, I believe, the chief among other causes. Weakness of the loins, wasting of flesh, dropsies, inflammation and suppuration of the glands around the throat, and discharges of matter from the eyes and nostrils—characterize the disease in that noble animal.

In the case of these animals, as well as in man, powerful tonic medicines, and nourishing digestible food are required, with complete separation from every cause, remote, and immediate, which either tended to excite the disease, or which would prolong its continuance, by adding to the difficulties of effecting a cure.

I have already alluded to the circumstance of food taken into the stomach; and the various secretions being retained within the body for an unduly long period, and have mentioned that the ingredients which are generated by chemical change taking place therein, are to a more or less degree poisonous.

I have mentioned this as a most frequent cause of disease, and especially of fever, but the subject deserves further illustration.

Liebig in his "animal chemistry," has explained that the chemical formula representing the elementary composition of flesh and of blood, which is one and the same, namely, $C. 48. H. 6. N. 39. O. 15.$ is exactly equal to the formula of bile, and that of urate of ammonia taken together. If therefore we deduct the atomic weight of urate of ammonia 29 from the sum of the above numbers, we obtain the atomic

weight of bile. This sufficiently shows that nature has intended that the whole detritus of the body shall be removed by the channels of the liver and kidneys.

In carnivorous animals, however, there is a complete exception to this, these organs in them are incapable of removing the vast quantity of animal substance which is daily separated from their bodies. A tigress encaged at Jansce, belonging to the Rajah, eats 24lbs. of goat's flesh daily. It evacuates not more fæcal matter than a human being, and eminges as its keeper said "*pice blur* (or as much as a pice) three or four times a day." What then becomes of the 24lbs of food? It must escape by the skin and lungs, and there is little doubt that as such animals are denied the elements of respiration, supplied by the vegetable kingdom to herbivora, as starch, sugar and gum, their place is supplied to them by the destruction of a great portion of their food, in the formation of ammonia, which is decomposed by the chemical union of oxygen taken into the blood from the lungs, with the hydrogen of the ammonia, forming water, to be discharged along with nitrogen by the breath.

The sulphur and phosphorus of the same being also discharged, and giving that fœtor which all carnivorous animals possess.

In man, however, and in all herbivorous animals, the ammonia is voided and concealed by chemical union, in the bile and urine. They require it not as a source of heat; they have their sugar, starch, and gum and oil, to supply carbon and hydrogen for

combustion within them. And they are free of fœtor, their lungs discharge nothing but carbonic acid gas and water. If, however, health becomes disturbed in any marked degree, so that the various organs do not perform their functions perfectly, a portion less or greater of the substances they are appointed to separate from the system, must be retained within it. Under such circumstances urea and bile* exist, and the former may be found in the blood, from which they are separated, as carbonate of ammonia, changing ultimately into carbonic acid, water and nitrogen, by the influence of the inhaled oxygen, and passed off by the lungs.

The extent to which nature can support in man and herbivora, this function, is limited: It is, however, a very important outlet for the detritus of the body, when the kidneys and liver are either debilitated by the long continued influence of fever, or their sensibility impaired by injury done to the brain and nervous system. Or, what is no uncommon case, when more food is taken than can be disposed of within the system. During sleep, in all men the function seems to me, to be in force; at all events, the breathing is deeper and steadier, and the skin more active, in sleeping than in waking. In all severe fevers, nature calls on the skin and lungs to aid in the work of depletion, and the calls for water to quench thirst are made with the view of supporting this function.

* Although bile cannot be detected chemically, in the blood, its compound nature, and the smallness of its proportion accounts for it.

In low typhoid fever, however, where the organs are all debilitated, the secretions and excretions are very imperfectly produced, the evil therefore we have here spoken of must exist, while the remedy is not to be found, as above, in the functions of respiration and transpiration; because the red globules of the blood, the *oxygen carriers*, are so reduced in number, as to be insufficient to meet the evil.* In such circumstances the state of the system is completely changed from that of health. It is marked by emaciation and debility in every structure and function. In fact, every organ is subjected to the poisonous influence of such substances as nature in health takes the greatest care to remove.

The first substance, so produced, I shall mention is carbonate of ammonia, which may be generated by the retention or non-secretion of bile and urea.

Often where there has once been severe disease of the liver, or where from long residence in a hot climate, the function of secretion is disturbed, the bowels slow and digestion impaired, a patient will feel subject to heaviness, sickness and head-ache, the motions of a greenish colour, and often in solid lumps. In this state he takes a purgative, and the faecal matter thereby discharged, scalds the anus almost unbearably at times, from the bile having undergone chemical change and produced ammonia.

We all know how often ammoniacal formations take place in the bladder, the presence of stone, or

* Mulder speaks of the Oxides of Protien^e, and the binoxide carrying oxygen into the system.

injury done to that organ is often followed by an ammoniacal deposit by affecting the functions of the kidneys.

In affections of the brain, we are told by medical authors to be particular in seeing that the urine is evacuated often, as the worst effects follow its retention, and in some diseases of the kidneys and bladder there is a strong ammoniacal odour from the patient's breath and skin, and with it an inclination to stupor and coma, caused in all likelihood by the direct sedative influence of ammonia in union with sulphur and hydrogen, as a hydro-sulphurette, which is circulating in the blood and producing the same poisonous effects as when breathed from without.

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Dr. Christison mentions the case of a boy who took to eating carbonate of ammonia, and caused thereby rapid emaciation. And Dr. Babington, in a very interesting paper in *Guy's Hospital Reports*, vol. ii. p. 534, throws some light on the cause of this effect of ammonia.

Dr. Babington shows that by mixing an alkali with an albuminous fluid the albumen is converted into mucus. Ammonia produced the same effect as the other alkalis, indeed we have only to mix together a little white of egg, and liq: ammonia, and allow them to stand, after mixing, for a few hours to verify what is here stated.

Now if it be the case that ammonia is disengaged in low typhoid fevers, and the fact is not to be doubted, the ammonia will certainly act on the

albumen of the blood, or on a portion of it, and change its nature entirely, and as albumen or fibrine, for they are the same, is the only proper nutrient ingredient of the blood, when it changes its character it must cease to be of value as such.

This will in some measure account for the frequency of discharges of mucus by the intestines and bronchi, in cases of low typhoid fever, and the general waste of substance that always accompanies that disease.

Sulphuretted Hydrogen generated within the body.

The breath of a cachectic person and of a glutton always smells more or less of this gas, the sulphur of which is derived from that forming an essential component part of albumen, or albuminous structures which nature is removing. In the first case, the organs are debilitated and cannot separate it by the proper channels; in the other there is more work assigned to them, than they are able to perform, and the excess is thrown off in this way.

It appears to me that this is the poison which, when largely generated in low typhoid cases, causes them to be infectious. It is probably always in combination with ammonia, and its power is greatly aided by want of ventilation.

It is the immediate cause of death in very many cases of congestive typhoid fever, which terminate in colliquative fluxes in our Indian jails, by its influence as a direct sedative poison, on the brain and nervous system; the manner of death being exactly

that which sulphuretted hydrogen when breathed from without would occasion.

Local depraved action.

In the case of local injury, when the vital action of a part becomes depraved, as for instance in a chancre occurring in a healthy man. The detritus, arising from the transformation of substance in and near the part, seems to escape by the open sore. This detritus, consisting chiefly of carbonate of ammonia, destroys the virtues of the albuminous substance coagulable lymph, by changing it into a secretion of mucus. By way of changing the nature of this action a brisk inflammation should be produced in the sore, and as it subsides it will leave the part healthy, unless the evil have extended to all the organs of the body generally, characterised by low slight febrile action, emaciation, and the vital agency weakened or depraved, as in secondary syphilis, or after the abuse of mercury, though the same action may exist where neither the one nor the other has ever operated.

I shall illustrate this with one other case which must be common to every medical man who has had to treat cases of cholera.

A cholera patient, after six or eight hours, sometimes loses the symptoms of the complaint, the secretions show themselves, warmth begins to be felt in the body, and the danger of the attack is supposed to be gone. The patient, however, does not get completely round, the bowels get obstinate and distended with air, there is but little urine secreted, he be-

comes drowsy and heavy, and latterly sinks into a coma and dies three or four days, perhaps, after every symptom of cholera had disappeared. What did the patient die of? I have carefully examined the vital organs in such cases; but alas, the knife unfolds but little, and the eye sees but the surface of things. I have seen health stamped on every organ. What then is the cause of death? the poisonous influence of the *unsecreted* substances, which the debilitated organs are not able to eliminate and throw off from the system.

Medicines employed in the treatment of Congestive Typhoid Fever.

In patients, the vigour of whose vital organs has been reduced by long exposure to the influence of congestive typhoid fever, in its mildest forms, there is often a great relish for acids, sometimes going so far as to become an inordinate desire, and marvellous is the quantity of pickled cabbages, capers or other vegetables, and of vinegar itself, they will sometimes consume. The circumstance of such patients relishing acids and of the Native practitioners generally, prescribing vinegar in affections of the spleen, is, I think, an indication deserving attention. I have for some time recommended the moderate use of pickles in cachectic cases, where the bowels were in good order, and I think with advantage; they seem to abate thirst, they give the patient a relish for his food, and do not, in my opinion, interfere with its digestion, but the contrary.

The antiseptic and antiscorbutic properties of vegetable acids have been long known. What is their action? is a question of much interest. On swallowing a quantity of vinegar, the first effect would be to neutralize any free alkali it met with, and experience has taught mankind to use it with such articles of diet as are of difficult digestion, or are liable to change speedily,—as salmon, &c.

Its effect is merely, that it neutralizes free ammonia, as it is disengaged within the stomach and upper portion of the intestines, in cases where the Muriatic Acid of the gastric juice is insufficient for the purpose, which is never the case in health, unless a man eat more than enough.

Action of Antiscorbutics.

The most noted antiscorbutic is Citric Acid, which has long sustained a very high character as such. This substance, as well as the vegeto-gelatinous agent pectine and tartaric acid, are the only three alimentary principles, which are constituted of Carbon, having the elements of water and Oxygen in excess.*

But Tartaric Acid, from its salts having a powerful action on the bowels and kidneys, is unfitted for answering any useful purpose as an antiscorbutic, while the two others, Citric Acid and pectine, the former having an excess of six atoms, and the latter of five atoms of oxygen, are readily digestible without having any marked therapeutic agency.

* Periero on Diet, page 25.

Citric Acid, when swallowed, would neutralize any free alkali it meets, and on meeting and forming a salt with ammonia, the two would be digested together, and the constitution of both completely changed, by the excess of oxygen generating water with the hydrogen of the ammonia, and the whole would escape by the lungs, as Carbonic Acid, free nitrogen, and the vapour of water.

The action of pectine is of course exactly similar.

No animals, except such as are exclusively carnivorous, can live long in health and strength, without having the benefit of one of these two substances applied to their bodies with their food. It is the long want of them at sea, that allows the accession of scurvy, and immediate relief from that complaint again follows their use.

The stronger a man is, the purer the atmosphere he breathes; and the greater his muscular exertion, the longer he may be, without these vegetable principles; he may live on animal food with rice, and wheaten flour for a time, but ultimately the vigour of his organs will fail, and so will the perfection of his digestion. His aliments, instead of being dissolved and applied to the purposes of repair, undergo to a small extent spontaneous change, and the evil consequences follow which have been already mentioned, and for which the readiest remedies are Citric Acid, and the pectinaceous principle.

But not only in scurvy are they useful, but in cases of long continued low fever lime juice has an excellent effect, indeed I have seen spleen disease

disappear, where nothing else was given as a medicine, and should infer, that material benefit would be derived from its use by debilitated convalescents, and all others who have been long in hospital; and in sickly seasons, in bad localities, were the members of whole regiments directed to use but a little lime or lemon juice daily, materially would it add to their healthiness.

The pectinaceous principle is found in very many vegetables used as diet. Carrots, turnips, onions, celery, beet, currants, apples, pears, plums, all the melon and cucumber tribe, and many other plants contain it.

Mercury in congestive typhoid fever.

I come now to the oft agitated subject of the use of mercury in cachectic diseases and feel myself on debatable ground. The opinions of one party of medical men, are rebelling against the experience of another. Let a man, however, ere he comes to a conclusion, sit down in calm unbiassed judgment, let him weigh the evidence which extensive experience and accurate observation have scattered over many a page, along with what he himself has seen, and while he may allow, that the benign agency of this medicine in all acute inflammatory diseases is well supported, he must allow that its action is deleterious in decidedly cachectic cases.

These two points, I conceive, established on the testimony of the members of our profession who are best able to judge, and difference of opinion can

only arise from symptoms being of a mixed character, which they often are, as in low fever succeeding exposure to the sun's influence. The first effect in such a case is inflammatory, and in this stage calomel and purgatives are most useful, and even blood-letting, but when this stage has passed off such treatment would be highly destructive. We must then support the system by stimuli and light diet; we must promote secretion, by emollient drinks in large quantity, and antiphlogistic measures must be entirely laid aside, except with the view of relieving local congestions.

The action of mercury on the system, as far as my experience goes, in small doses and given alone, first manifests itself on the lymphatic vessels and glands, then on the lacteal vessels and glands. The lining mucous membrane, of the gastro-intestinal canal, including that of the mouth, fauces and œsophagus, becomes thickened, and the gums get swollen and inflamed, saliva then flows freely, and the salivary glands inflame. If mercury be pushed beyond this, the inflammation of the glands becomes suppurative and gangrenous, enveloping the parts contiguous—portions of intestine sometimes also ulcerating.

If a man be young, healthy and strong, and the mercury he takes be in small doses, especially if given with tonic medicines, as sulphate of iron, he at the same time taking much exercise, will not be influenced beyond a certain point. In such states I have seen the skin, tongue and fauces, spotted with weals, and the bowels always constipated.

On the other hand, in a state of Cachexia, when the work of absorption, emaciation and exhaustion has already advanced, and the effect of the administration of mercury so far anticipated, the first influence of this medicine is manifested in the salivary glands, which, with the contiguous parts, become gangrenous, portions of intestine sometimes taking on the same condition, and the various organs which would at one time have increased their action under the influence of mercury, now cease to exert themselves at all. Dropsies therefore take place, if the patient live long enough to allow them, and exhausting discharges flow from the skin and bowels.

The action of the medicine is the same in all cases, the condition of the patient alone varies, and want of attention to this, has led to discordancy as to the propriety of its administration, especially in the treatment of cachectic diseases. But this rule, I think, may be considered a safe principle, never to give mercury under any consideration while there are local congestions in the liver or spleen, or in dropsies, gangrene or diarrhœa, *when there is present a low fever of long standing, with emaciation, muscular weakness and exhaustion.* But whether or not these diseases be present, in that condition of the system mercury is hurtful, for surely it is not the mere presence of an enlarged spleen that makes this medicine pernicious—but the condition of system, and that alone, under which spleen arises.* Twining has

* With respect to mercury, when the urine is acid, occasional doses of blue pill or other mercurial, may be sometimes used with advantage.

shown the necessity of avoiding mercury in this disease in the most profitable chapter that was ever written on Indian medicine. He has pointed out in such warm colours, the horrors of the destructive practice, that no one who has profitted either by his own experience or that of others, would ever prescribe a single grain in the complaint.

But this medicine is baneful alike in all the affections above mentioned, it is destructive in them all. The action of mercury is anticipated by the disease, and it has yet one redeeming point. It cannot by any accident be innocent. In the smallest quantities it is pernicious, and in doses such as are given for the cure of acute diseases it is most destructive.

On administering a large dose of Chloride of Mercury by itself, the patient being strong and kept in a heated atmosphere, the action will not be very manifest on any particular organ; but, on the contrary, if we stem some of the channels of exit, the medicine is powerfully directed towards the others. If the skin be kept at a cool temperature, it will be carried off usually by the bowels. Again, the action of mercury may be directed as we wish by administering other medicines with it. If it be given with an aperient, the aperient effect is more powerful, and the same with sudorifics diuretics, &c., for

but in alkaline conditions of that secretion, the effects of this remedy are very doubtful, and when carried to any extent they seldom fail of increasing the irritation, not only by rendering the urine more alkaline, but probably by their pernicious effects on the constitution. *Prout on the Urinary Organs*, page 271.

if given with a preparation of mercury their action is doubled and trebled, but in no way altered by the combination, what then are we to infer from these facts? but that mercury is a most powerful and direct sedative differing from most others, in the fact of its not affecting the nervous system immediately, but in relaxing directly every fibre in the body.

Its influence is most marked in the glandular structures, the functions of secretion and lymphatic absorption being rendered more active; while the relaxed condition of every fibrous structure in the body, opposes no obstacle to the free discharge of the secreted fluid; and it abates the muscular power of the arteries.

Such effects in a body debilitated by disease must be very hurtful, by increasing general prostration, languor in the circulation, and promoting the activity of the absorbent vessels, thereby increasing general emaciation and debility; the proximate effect of a high temperature is very similar to this, as it causes loss of tone in the muscles, increased action of the glands, or rather allows a freer discharge of their secretions, by opening their pores; and the pulse becomes softer. A hot bath therefore, like a dose of calomel, acts as a contra stimulant, in relieving acute inflammatory action, especially when accompanied with pyrexia.

I have only further to say of this rasping remedy mercury, that the great truth urged in Twining's chapter on its use in spleen disease, is of wider

interest than there set forth; the remarks he applies to the treatment of spleen, by mercury, refer with equal force to every case of congestive typhoid fever.

Nitric Acid.

The use of Nitric Acid, both internally and externally has received much praise, from some practitioners, in cases of spleen disease, but a remark made to me by Dr. Halliday, late Superintending Surgeon of the Benares division, I have found to agree with what I myself have observed in using it, viz. "That while it promotes absorption in the substance of the spleen, the vital organs of the body generally suffer in like manner, and the patient sinks under its use if long continued."

Nitric Acid has a decidedly alterative influence, as well as tonic, and no alterative can be useful, but the contrary, in cases of congestion, accompanying or caused by a low fever, where they have any chemical effect in promoting the transformation of the substance of the issues.

The action of nitric acid on the body is twofold. If taken largely diluted, it may be made a pleasant acidulous drink, and when the stomach is empty, as in fevers, its influence on its coats is that of tonic, but when undergoing digestion it ceases to be nitric acid, but supplies its oxygen to the formation of acidulous compounds with sulphur and phosphorus, both of which are essential to the constitution of able men, whether in the blood, or in muscular fibre, and as sulphur forms but 3.6 parts in 100.0 of albu-

men, it is evident that this process, going on even to a small extent, must destroy the nutritive properties of a large portion of albuminous matter, by changing its chemical properties. On this I believe depends the alterative action of nitric acid.

When this medicine becomes mixed with food, it must alter the properties of a portion of it, by its entering into the formation of acids with the bases it happens to find, and I would therefore infer that its long continued use, in large quantities would be injurious to any patient, more especially to a cachectic. With bitters it often has an excellent effect in promoting the healthy action of parts, after they have been affected by severe and extensive inflammation, as dysentery or hepatic inflammation.

Object of Treatment.

In the first aphorism penned by the first author in medicine, is set forth the necessity of the proper management of external things—and vain indeed are the best directed efforts of a physician, until circumstances sufficient to maintain health, are first secured to those in whom we desire to restore it.

When a free and pure atmosphere, proper food, cleanliness of person and adequate shelter, are insufficient to secure health, medicine is required, but if these are not available, it may be spitted on the ground, yet how often is the contrary acted on! In 1840, during a sickly season, I was in medical charge of two hospitals at Jaunpore, the one well ventilated, and in an airy dry spot, the other was situat-

ed in a filthy small enclosure with high mud walls around it. Into this, upwards of 100 patients were brought for medical aid, though there was not accommodation for more than half the number, and of all those who were severely and *constitutionally* affected, *not one recovered*. The severe cases of fever and dysentery put on a typhoid form, and the patients sank and died. (I make no allusion here to surgical cases, or the accidental affections of health.) This was the jail hospital, whereas in the one first alluded to, I lost but one man, though in the recruiting dépôt, 1000 strong, there were some very severe cases at times.

This was an old spleen case, in a drummer, who one day ate, as I was told, the whole of a four quarter of mutton, and died the day following from severe diarrhœa.—This death was accidental therefore, and should not be counted.

It is not to be supposed that my attention, or that the treatment was different in the two instances, yet behold the result! (I should mention that the jail hospital has since been altered with benefit.)

Having first secured to the sick circumstances necessary to the support of health, our object should be to cause the discontinuance of fever by every means in our power, whatever be its characters. This is greatly aided by attention to diet, which should be chiefly farinaceous, and a proportion of wine be allowed two or three times a day. Stimuli are required, and both food and medicine should partake of that nature. Rice or sago congee, sweet-

ened to the taste, and containing five or six drams of brandy, I often give to the natives twice a day. It is an excellent cordial, nourishing, and easily taken.

It ought never however to cause a flush, but only to support the system and prevent prostration. Drinks should be given very often, and the lips and tongue be kept always moist.—Many men die in jails for want of this alone, when their sensations are too blunted, to feel they require it.

Camphor mixture diluted with water is a grateful drink,—and a good aromatic stimulant, and might be given every two hours when the patient is in a low state; and for the reasons stated above, lime juice water should be given daily.

I often prescribe vinegar and brandy, each half an ounce, with sugar and warm water, to be given twice a day, and a little vinegar to be sprinkled over the patient's person and bed clothes.

During the continuance of a paroxysm of fever food should never be given; the irritability of the stomach may reject it at once, but, if retained, it may run to spontaneous decomposition, it cannot be digested.

As much drink should be given as the patient finds a comfort, the quantity, though small, each time, should be often repeated. It is in fluid that the transformed animal matter escapes from the system, by the kidneys, skin and lungs, and if drinks be not given, the symptoms are aggravated.

Free access of fresh air to the patient's person is necessary, and while the skin is hot and dry the body, and especially the arms and legs, should be

frequently sponged. The head must carefully be kept cool, for even in health the whole functions of life become seriously disturbed if the brain be exposed to a high temperature, and in disease susceptibility is of course greater.

The bowels should never be purged violently, but only kept unloaded, by the use of small doses of compound extract of colocynth, or other mild aperient, but two, or not more than three motions, should be secured daily, as the secretions of the lining membrane of the stomach and bowels, if retained, become changed and produce a very deleterious effect, which is, however, as we have already said, considerably corrected by the use of saccharine and farinaceous food or drinks, which becoming acid, when retained, neutralize ammoniacal productions.

It is a very fortunate circumstance, if the period of approach of a paroxysm can be known beforehand, as the full influence of febrifuge medicine can be brought to bear on the system when most it is required. Two, three or more grains of quinine, with one to two of opium, given once or twice before the expected paroxysm generally prevents its coming. The opium greatly aids the quinine, by lessening the susceptibility of the patient, it secures quiet and freedom from nervous restlessness, and moderates discharges by the skin and bowels. Where night sweats prevail, two grains of quinine, with two of opium, given at bed-time make a useful dose, while tonics as cheretta, bark, and sulphate of iron, are advantageously given through the day.

If fever be obstinate and the period of its accession uncertain, quinine, as a general tonic, may be given three or four times a day. But if given late in the evening it will prevent sleep, unless conjoined with an opiate and half a grain of opium with each dose will greatly aid the febrifuge virtues of quinine at any time.

In cases where the fever comes again and again, or where quinine stops it only for the time being, I have often given tincture of myrrh in a dose of two drams, with twenty drops of laudanum mixed with a little honey or syrup. This should be given twice within a few hours, and if the stomach be irritable drinks should be avoided for a short time before the first and after the second dose.

If the tincture of myrrh be good, the fever will not return for three or four days, but a repetition of it in smaller quantity daily will entirely prevent future accessions.

The aroma of myrrh may be felt for several days in the breath, after a large dose has been administered, and for this period the fever keeps away.

I have tried many specimens of the tincture of myrrh, and find that only good which is pale in colour, if it have the reddish tint of cherry it is bad—consisting chiefly of resin. Its virtues seem to depend on a volatile principle, on which account the newer it is the better. I have several times prepared it from the gum myrrh supplied on indent by the medical store-keepers, but found it inferior to the tincture supplied from the same source.

The action of tincture of myrrh both, immediate and remote, in combination with tincture of opium, is so similar to that of *Warburg's Fever Drops*, which it also resembles in taste, that I feel confident, the virtues of both depend on the same principle.

On mixing a portion of Warburg's Fever Drops with water, and filtering and acidulating the liquid, I soon after observed sparkling scales of benzoic acid floating therein. On this may depend a part of its virtues. Be that as it may, however, I feel convinced that the sometimes astonishing effect of balsams and gum resins in relieving paroxysmal pains in the joints, and affections of the kidneys and bladder, the febrifuge property of Warburg's drops, and of tincture of myrrh are all owing to the same principle acting in the same way, and this perhaps by giving material for the formation of hippuric acid, which in union with alkaline gases, is much more soluble than the urates, and consequently more easily voided by the skin, lungs and kidneys. The aroma of myrrh may be felt for several days after it is taken in the breath, as well as in the urine.

Ammonia.

Ammonia, as a stimulant, should not be given in cases of low fever. The first effect may be restorative on the coats of the stomach, but after this it would be hurtful, there being already too much ammonia in the system.

Iron.

The use of preparations of Iron is highly beneficial in cachectic cases. They are said to act by affording an element to the red portion of the blood. They should not be given when the fever is very marked, being apt to cause fulness of the head, and bleeding at the nose, and their use should never be exclusive.

Effects of change of air.

There is no one circumstance attended with such good effect as change of air in cases of low and obstinate fever. It is even beneficial where the climate visited is no better than the one left, at least for a time; but great benefit would always attend a change were patients careful to go to a place, the geological features of which differ from the one they left.

Of the disease called Chronic Dysentery, frequent among prisoners.

We come now to speak of the affections which arise in the course of congestive typhoid fever, the first that claims notice being the most destructive of them all called "Chronic Dysentery," though not a symptom of the complaint characterizes it, except frequent alvine evacuations.

There are few Native Regiments in which death does not happen in at least some cases annually from this cause, but they are milder and take a longer period to run their course, than those of the same disease in jails. Indeed, there are few fatal

cases of fever which in the end have not put on a typhoid type; and where this so-called dysenteric character supervenes, it is the proximate cause of death.

If ever a cognomen did harm, the name "Chronic Dysentery," applied to this affection, has done so, by communicating an improper idea of the nature of the disorder, and consequently giving rise to an erroneous treatment. The disease is essentially colliquative diarrhœa arising in the course of low typhoid fever, though sometimes a dysenteric character is produced by the following accidental causes:—

1. Exposure to cold in the night, especially if the patient sleep on the ground.
2. Swallowing an excessive quantity of half-cooked food.
3. Eating too freely hot spices, when not in the habit of using them.

One or more of these causes, may generally be found to have operated in jails; the second is that which obtains most frequently in the hospitals of the Native Regiments.

The nature of the fever has already been described, and here I need not say more than that the typhoid symptoms which accompany this complication are most marked; emaciation and exhaustion come rapidly on, and the patient becomes so reduced as to be unable to move a limb, or to give audible utterance to his voice. His motions, sometimes loaded with dark blood, run from him involuntarily. He lies in a state of stupor, perfectly passive; and dislikes being

disturbed even to receive water, though his mouth is parched for the want of it ; and I believe death is often hastened for want of this agent alone, from the inability to make known, or even to feel, the necessity of it.

Collapse and death may come on at any time in the course of the complaint, the debilitated patient sinks into a stupor, a cold sweat moistens his skin, the pulse at the wrist becomes imperceptible, his motions pass unconsciously, are frequent, but not large, and they, as well as the patient's skin, have a most offensive smell, rendering a whole ward as disagreeable and unwholesome as if it contained a putrid corpse.

More frequently the motions flow freely from the body, with little pain or effort, until the whole of the soft solids and fluids of the body are completely wasted, and the shrivelled and dried up appearance of such as have died of this complaint must be familiar to every Indian Medical officer. The haggard countenance looks as if its integument were stretched over the dry bones, the abdomen emptied apparently of its contents, the hollowed integument receding to the spine. Every rib is defined prominently, and the muscular mass is almost all absorbed, what remains is of pale colour. The intestines have the same hue, and often present no appearance of having undergone the effects of inflammatory action. In the body there is very little blood, and that little is thin, watery and but slightly coagulable, on account of the deficiency of fibrine.

Such a patient should be separated from his fellows, and taken where a free and pure air can circulate around him. On no account should he remain near other patients, because of the factor of his person, and of his alvine evacuations. Solution of chloride of lime should be often sprinkled around him, his body sponged with vinegar and water, and on no account allowed to get harsh and dry. Coldness of the surface, and diminished muscular power, indicate that stimuli must be freely given, wine and brandy should be resorted to ; but on no account to the extent of flushing the patient. It is best therefore to give small quantities often repeated with thin warm sago or other flummery.

Five or six grains of opium should be given in the course of a day, in conjunction with quinine or decoction of bark ; while injections of 10 grains of acetate of lead, five of opium, and two ounces of cold congee, should be thrown into the rectum ; these have often an excellent effect, while the smallness of the quantity renders them easy of retainment ; these may be repeated several times during a day with much advantage.

In this condition of the system, I have seen *mercury* as well as *ipecacuanha* given, the former to “ *correct the secretions,*” and the latter “ *because it is given in dysentery always,*” but with the worst effect ; they can only be useful in acute inflammations, local or general, they cannot add to the strength of a patient, they cannot give tone to his organs, or promote digestion or assimilation. Life is flowing from every pore of the body, and they can only hasten the current.

When the severer symptoms have abated, the tonic medicine and diet should not be omitted. Sulphate of iron and extract of gentian in pill prove very useful in convalescence, and great care should be taken to put an end to night sweats occurring at this time; wine and tonics through the day, with quinine and opium in the evening, will be found highly useful in debility of the organs accompanied by this symptom.

Spleen disease.

The next complication to be noticed is spleen disease; the most important that accompanies congestive typhoid fever, because it is everywhere to be met with. We turn not to the right, nor to the left, but its victims are to be found, in the most miserable circumstances, from disease and poverty, unable to work, and their brethren too poor to support them—courting relief from every source where they are likely to obtain it.

For particular purposes two conditions of the organ in the disease, as it is usually found, should be always remembered. One where it is free of pain on pressure and simply enlarged by vascular distention. This character is put on where the fever, under the influence of which the enlargement has taken place, is long continued, slight, indistinct and obstinate. The second condition is marked by tenderness in the diseased organ, which may be either acute or dull as the peritoneal surface or the parenchymatous structure is involved. This painful enlargement of the spleen takes place, when there is a distinct long continued cold stage to the fever, which is generally not

of long standing, and of a tertian type. It seems to be caused by the injury done to the organ, during the continuance of the cold stage; when the blood seems forced into it, distending it to twice the volume it becomes when the cold stage is off. When fever of this kind is well met, and put an end to, by febrifuge medicine and change of air, the injury done to the spleen requires time to heal it, and depositions of coagulable matter merely take place in its substance from slight inflammatory action after the fever has ceased giving rise to chronic indurations.

This condition of the spleen requires a spirited local treatment, and none is better, than the frequent application of a few leeches over the seat of the organ. Preparations of iodine, blisters, caustics, and setons have all been recommended with the view of diminishing its volume.

It is however very rare to find the characteristics of this condition as they are here described, they are nearly always more or less mixed with those first alluded to, in which there is simple vascular distention.

There are, however, such cases, though I have seen but few, and these in healthy strong Europeans, who had forsaken a locality in which they had some smart attacks of ague, in whom the spleen continued large and painful after the fever had completely ceased. In such cases, I should like to know the harm that would result from the administration of a few grains of calomel. But when a cachectic state is manifest, when the patient has been long under the influence of congestive typhoid fever, feeble and emaciated,

all the evils already spoken of in this communication, and so fully described by Twining in his chapter on the use of mercury in spleen disease, would certainly follow its administration, not because the spleen is large, but because the system is in a state incompatible with the use of mercury.

• In the treatment of spleen, as well as every other complication arising under the influence of congestive typhoid fever, the first step to be attained in the treatment is immunity from the fever, and I consider a treatment which has lately been adopted on the continent with the greatest success sufficiently supports the views I am now advocating. This consists in the administration of large doses of sulphate of quinine; whose influence can only be that of febrifuge and tonic.

On perusing Dr. Martin's chapter recommending the use of iodide of lead in diseases of the spleen, I determined to try that medicine. It is made by adding a solution of 100 parts of hydriodate of potass to a solution of 75 parts of acetate of lead. The precipitate should be washed and dried. Of this I gave at first half a grain night and morning to a number of men ill of congestive typhoid fever, with complications chiefly of a rheumatic character. I had only at the time one case of spleen disease in ~~which~~ there was also pains in the joints. All other medicine was stopped. At first there was no effect whatever produced, and the iodide was gradually increased till each man was taking three grains three times a day, and its effect was beneficial, and chiefly manifest in

giving relief to such as were afflicted with pains in the joints: with sometimes even change of structure in the affected part.

In one young man in whom there were severe pains throughout the whole body, which came in paroxysms every night and lasted six hours, and were most severe in the shafts of the long bones of the legs and forearms—an eruption was caused by the medicine, of an erythematous character, which was painful and itchy for several days—on its appearing all the former pains ceased to recur. The iodide was then omitted, the skin got well, and after a week's use of tonic medicines the patient returned to his duty in a good state of health.

In no other case did the skin become inflamed. But in one of an old man, who had been long ill, the lead produced severe pain in the abdomen, which came on suddenly. It was relieved by the administration of *Lr. Opii*, vinegar and aperient medicine.

In the case where there was enlargement of the spleen, that organ became smaller under the influence of the iodide.

There can therefore be no doubt, that the iodide of lead produces a very beneficial effect in cases of congestive typhoid fever, and in the complications ~~which~~ arise under its influence; but whether this effect is better than that of the iodide of potassium, is to be questioned. The latter is a safe and effective medicine, and may be pushed to a considerable length in rheumatic and other affections without fear; whereas the lead in the iodide may become carbon-

ated and poisonous, and cause dangerous effects. It is always to be remarked that when profuse discharges take place from the system, as perspirations from the skin, and mucous secretions from the intestines and bronchi, fever becomes greatly modified and its symptoms indistinct. Medicines therefore which have the effect of opening the channels generally, for the exit of transformed matter from the system, have the effect of lessening the symptoms or even causing the discontinuance of fever, while the system is under their influence. Mercury, iodine and sulphur, are in some respects alike in this, though the two latter only are compatible with the symptoms and condition of a patient ill of long continued low typhoid fever.

These medicines however only unload the system, they do not strengthen it. They open the pores and permit the escape of substances which are incompatible with health, and which the liver and kidneys, were they in a vigorous and healthy condition, would entirely remove.

It is therefore clear, that though they relieve a patient they can neither give strength and tone to his organs, nor secure him against relapses. They may be advantageously given in advance of other medicine, but we must lean on tonics and stimulants to effect improvement and restoration.

On account of the debilitated condition generally of patients ill of spleen disease, and their great liability to discharges, especially from the bowels, I have never found that the free use of Twining's Mixture is

consistent even with safety to the sick, from its severe effect as an aperient. This remark applies chiefly to the natives ill of the complaint in jails and regimental hospitals, but in such patients as have pain in the organs, and whose strength and general health are but little affected, this mixture might be advantageously given, as well as other medicines of a depletory nature, as sudorifics, the use of leeches, &c.

I have often treated spleen cases of the worst kind in the following manner. A light nourishing diet, chiefly farinaceous, is given, with a little wine; fever is put an end to by the use of quinine or bark and opium. The use of lime juice is encouraged, and drinks of camphor mixture diluted, are allowed. Vinegar or the use of pickles is also permitted. When the fever has ceased, other tonics may be employed advantageously, as preparations of iron with gentian, &c., and to these are added an opiate, or an aperient, according to the effect desired, judging from the condition of the patient. The tonics employed are not to be long continued at a time, but changed for others, and this plan must be continued until the patient's health becomes restored.

On the Rheumatic affections accompanying congestive typhoid fever.

We have not in native hospitals a more troublesome or more numerous list of patients, ill of low typhoid fever, than those in whom the complication is of a rheumatic character. The pains come in paroxysms, often intensely severe, and are seated in

the knee and ankle, elbow and wrist joints, though sometimes in the joints of the fingers and toes; the accessions generally come at 3 or 4 A. M., and the pain continues severe for a period of four or five hours when it abates, though when the structure of the part has commenced to alter it seldom entirely ceases, and sometimes lasts with much severity for 8, 10 or 12 hours at a time.

External warmth adds to the severity of the pains, though the coldest period of the 24 hours is the time they are most severe, this is because febrile disturbance is at that time most marked.

Heat and œdema not unusually accompany the affection, but redness is never observed.

The disease at first attacks the fibrous structures around the joints, and extends along the periosteal covering of the bones which compose it. The pains are then of a purely neuralgic character. Fluid becomes thrown in among the fibrous coverings of the joints affected; and in the interior of the joints and neighbouring bursæ so much fluid is secreted, that the shape and appearance of the limb become quite changed. The articulating surfaces of the joints are absorbed, and the extremities of the bones become increased in diameter, and altered in both shape and structure.

On the fever, which always precedes the disease, being stopped, before structural lesion of the joints has taken place, the pains at once discontinue, but when the fever is stopped *after* structural change has taken place, nature of course requires some time to

repair the injury which has been inflicted, and it is often difficult to foresee the result of this effort, for, with all care, enlargements of the joint, distortions, rigidity, or even complete immobility and partial paralysis sometimes supervene in greater or less degrees.

The form of rheumatism to which this is most allied is rheumatagea or rheumatic gout, of medical authors ; the symptoms of which are the same as those just mentioned. It may arise in two states of the system, the first, the one we have described as accompanying low typhoid fever ; in which the debilitated organs of secretion become unable to separate from the body substances deleterious to it, the nature of which has already been spoken of ; the second we find in elderly men addicted to the table, who take no exercise : in which case more is eaten than is required for the purposes of repair, and the liver and kidneys, being inadequate to the extra labour of removing an undue quantity of transformed matter, it must lie unsecreted in the system. Uric acid, therefore, unaffected by the kidney, and soda, an essential of bile, unite as urate of soda, and most probably form the poison, the presence of which occasions the pain which so strongly marks this complaint ; and which is sometimes deposited under the name of chalk stones. An abridged diet and exercise are all that such a patient requires.

The treatment of this painful affection, as it occurs in jails and regiments, should consist in first aiming to attain a discontinuance of all accompanying fever,

and to support and improve the system, and these advantages are best attained by adopting the measures already recommended. I shall only allude to the local treatment therefore in this place.

Blisters I have often seen applied, and believe that though they sometimes have done good, their general use is objectionable, for frequently they only add to the patient's sufferings, and prevent, by opening an extensive sore, the use of better remedies. Indeed, I have reason to believe they very often prolong the period of the disease, which, according to my idea, of the exciting cause may arise from the well-known influence which cantharides exerts over the secretions of the kidney.

Leeches may often be applied with great advantage, especially where the heat is great, and it is better to repeat them often than apply large numbers at a time. I have for the last two years been in the habit of scarifying the skin over the part affected, with the scarificator accompanying a set of cupping instruments. This is applied 10 or 12 times, so as to go completely round the joint. There is from each wound a discharge of blood, often mixed with a little watery fluid which flows for a short time; and if the joint be swollen, and its shape beginning to change, a hot embrocation is rubbed into the wounds, which causes at the time a severe burning pain, but this lasts but a few minutes and so great relief follows, that patients often beg to have their other affected joints similarly treated. The internal use of hydriodate of potass, is always attended by great relief from

pain, and the administration of this medicine with the above treatment, in doses of 3 to 5 grains three times a day, succeeded by tonics and stimulants, would in most cases be found a wholesome and effective practice.

All depletive measures are highly objectionable, and the treatment by colchicum and purging, as well as by calomel and diaphoretics, is ill-suited for the class of patients in which we find the disease among the natives of India. Sometimes among European soldiers the disease is found, especially where the constitution has been injured by abuse of mercury, and repeated attacks of syphilis, and with such the hydriodate will be found a most valuable medicine; indeed, so great is the relief obtained by its use, that several individuals who had been invalided from the Benares Company of Artillery used to obtain leave at Chunar, where they were sent to, to visit Benares, and made a journey of 32 miles, going and coming, for the purpose of obtaining from me a few grains of that medicine.

Paralysis.

In cachectic complaints paraplegia is very common, and chiefly apparent in the movements of the lower extremities. It sometimes succeeds severe attacks of rheumatism terminating in emaciation and rigidity of the limbs. I have seen many cases in a regimental hospital, where mercury, in my opinion, was too freely administered; and I believe the mercurial treatment for rheumatism was the principal

cause. That mercury has the effect of directly producing paralytic affections is well proved from the state of health of such as attend furnaces for the reduction of the metal in Spain, as well as that of those whose trade is to gild silver and other metals in England, in the latter of whom I have seen the disease, which is so frequent and destructive, that very high wages alone can ensure workmen.

Scurvy.

In Scurvy occurring at sea, the same symptoms are presented which have been described as characterizing congestive typhoid fever; and even the peculiar condition of the subjects affected, and the influences to which they are exposed, do not give rise to any marked difference in the general features of the complaint. The affection is the same, and its consequences as congestive complications of various kinds are the same, the condition of the blood is also the same. Scurvy arises at sea when its subjects are in a crowded state, and consequently breathing an impure atmosphere, eating a diet having a deficiency of nutritive, and an excess of the respiratory principles, gum, sugar and treacle, and influenced by a poisonous quantity of Chloride of Sodium supplied to the mucous lining of the stomach and intestinal canal, which acts as a local irritant.

Recent salted food is, with the exception of the presence of salt, but little different from the same in its fresh state; but the salted meat used at sea is first preserved in a brine of salt and nitre, and, when

taken out for use, is again soaked in water for the removal of as much saline matter as possible. These soakings must remove, I conceive, the whole of the gelatinous matter, or a very great portion of it; and after this it is boiled, and in that process loses often a half or more of its weight; what remains is an unwholesome, hard, fibrous and indigestible mass, in which it is highly probable that considerable chemical change may have taken place, and its constitution altered, whereby its nutritive virtues may be to a great extent destroyed. To eat such food for any time with only the principles contained in farinaceous substances, which are unable to support life, as gum, starch and sugar, is but starvation; and when to this is coupled a bad atmosphere, and the application of a poisonous quantity of salt to the lining membrane of the stomach and intestines, sea scurvy certainly follows. In the comparatively good arrangements now made in sailing vessels, the two last causes only operate, and the first, but to a partial extent, the ravages therefore made by the disease in former years, are now never witnessed, and citric acid, or rather lemon juice, serves to keep it in check, and where the causes which favour the manifestation of the affection do not operate destructively, this valuable principle will prevent its appearance. By some it has on this account been regarded as a specific, but useful though it be, unless it can supply the place of adequate food, shelter, and pure air, to a man, it cannot *completely* prevent or cure scurvy.

I had an opportunity of seeing the disease in a vessel manned by lascars, which was four months on a voyage from England to Bengal. The whole crew had become weakened, and in a few the disease was manifest, but in a slight degree.

The men had occasionally a little salt beef given them, and besides this they had only rice, dāl, ghee, salt fish, wheaten flour and currie stuffs, in a manner badly regulated. The allowance of rice was too great, while that of flour was not enough to benefit them. Had a sheep been killed for their use at times, so that they could have had a little fresh meat, and recent salt meat occasionally all the voyage, with potatoes, which they might easily have procured in England, the frequent use of vinegar or pickles, and twice or three times a week wheaten bread, with their dāl, and onions daily, instead of the continued and almost exclusive use of curried salt fish and rice day after day, I am convinced they would have returned to Bengal in as good health as they left it. It is far from creditable to those whose wealth loads the breast of the ocean, and to the discipline and economy of ships, that scurvy should ever now occur in vessels from British ports.

The occasional use of fresh animal food is as useful in preventing, as the use of fresh vegetables in promoting the cure of the disease, and as a little extra expense is alone what can prevent its being secured to lascar crews of country ships, it would be worthy our government to take measures to secure it to them, with other essentials to their health in

long voyages, seeing that wealth is a bad compensation for the blood of the poor.

The space which this communication already occupies, prevents my alluding to other complications, which arise under the influence of congestive typhoid fever. And I have only further to remark on the causes, which obtain, among our armies in India, and in our hospitals for prisoners.

Circumstances which operate to occasion the disease.

Among European soldiers in India, the want of fresh air is a very frequent cause of prolonged slight but obstinate febrile affections. Barracks, for the accommodation of a company of European Artillery, are intended for the use of one hundred men, and beyond this there is no room to spare. But it seldom happens that there are more than about ninety belonging to the company; and of course the space allowed is ample for that number: but a number of the men are married, and have each at an average two children; and as many as ten, twelve, or more wives with their families have all to find accommodation with the men in the space assigned for the use of the company; and for the sake of privacy their little allotments must have screens and curtains around them, which obstruct ventilation. The Artillery barracks at the Head-Quarters of the Saugor Division are a double range of bomb-proof buildings, with an enclosed verandah all round. At the middle part of each roof, a small opening is left, with a covering over it, with a view to ventilation, but they are

all too small to effect any useful purpose, unable to remove even the heated air from a lamp burning beneath. Sometimes the occupants become so sickly, that Committees have been appointed to determine the cause, and it has been agreed to by some that a vapour ascending from the ground is the evil against which they had to contend; and by way of confining this enemy to its native dust, a resinous varnish was spread over the floor, but without any good arising therefrom, for the men were as sickly as before, and so they will continue till arrangements are made for the better airing of the place, and I feel confident, that were the openings in each dome made a foot and a half in diameter,—with a cupola over it, to keep out the sun's rays and rain, the barracks would be much more healthy, as the heated atmosphere around the men would ascend and escape, especially at night. In this climate no public buildings ought to have a double range, because perflution is rendered imperfect, and when the external atmosphere is still, that contained in the building must be stagnant. A vitiated atmosphere soon affects the health of those who breath it, and lays them open to disease from the slightest causes, frequent attacks of a low obstinate fever, bring on emaciation, spleen disease, and the weakening effects of colliquative discharges from the skin, intestines, and bronchi.

In this state many men die at Saugor when resident in the barracks, and the ravages of Cholera are also severe. I allude particularly to Saugor, for I know no locality in India, where the evil alluded

to exists in so marked a degree, and where its cause is so evident.

Recruiting, as at present managed, predisposes to the disease in the Native Army.

Numerous circumstances arise from time to time, of a nature not to be foreseen nor guarded against; which seriously affect the health of regiments, forming the Native Army; as irregularity in the fall of rains during the rainy season, and sudden necessity for exposure to fatigue and the power of the sun, &c., the effects of these no medical treatment can meet, nor can the most judicious arrangements prevent. Regard to two circumstances only can lessen the liability of men to such impressions, caution in the selection of recruits, and care under all circumstances; that duty is such, as few can bear consistently with their health.

Recruiting, as at present conducted, is not consistent with the interests of the service; and as there are no rules for the guidance of either the commanding officer, or the Medical officer, the whole matter is left to opinion, and the former takes what men he pleases unless the Medical officers certify that they have some disease. Boys are consequently taken whose age has been certified by the Medical officer as 14, and others who have been declared "unfit from youth."

It is a great error to suppose that because a man is free of disease, he must be fit to be a soldier. He may be toothless, may squint with his right eye, so

that he cannot take aim, may be a narrow-chested weedy man ; may have the scars of ulcers on his legs ready to re-open ; or bunyans on his feet, and yet he may be in health ; and, vice versâ, a man may be labouring under sickness and yet be fit to be a soldier, as in the case of men whose feet are swelled from a long march, who have a slight diarrhœa, itch, or other trivial complaint, requiring only a few days treatment.

Commanding officers prefer young recruits, because they are easily drilled, knowing that their names may be struck out, at any time they show physical unfitness, and individual cases of suffering have come to my notice, the consequence of youths being taken into the service in a state of unfitness from youth and debility. Ground out and exhausted by their fatigues on the parade, they may either sink and die, or after lingering in hospital for months, their names are struck off the strength of their corps as "physically unfit for the service," and they return to their homes in a state unfitted for work, and a burden to themselves and to their friends ;—or, if barely able to sustain the duties of Sepoys, necessity compells them to endure them without complaint ; but they are bad soldiers and liable to be affected by slight causes, moreover they do not recover from fevers, or the effects of injury like good men.

Liability to military service commences in great Britain, I understand, at 18 years of age, and by most continental governments it has been raised to 20. Surely then it is not to be averred that the native inhabitants of India can bear arms and endure the pains

and toils of war, consistently with their own health and the good of the service, at an earlier age than Europeans.

The Native Indian puts on puberty earlier than the European, but not the strength and vigour of manhood, and he ought not to be taken into the service till he has completed 18 years of age.

Sickness may be seen in Native regiments sometimes wide spread and severe; and although it is easy to find an immediate exciting cause to be assigned, to the nature of some objectionable locality, or the severity of a season, still I maintain, after considerable opportunity of judging, that the constitutions of men intertained too young and thereby impaired, are more open to impressions than they would otherwise be, and consequently do suffer more. While therefore, as at present, there is not sufficient check against the enlistment of unfit men, it may justly be maintained, that these severe visitations are not unconnected with the violation of the most important natural laws of human life.

It would be well worthy the interests of our Native Army, were there distinct orders issued to all commanding Officers, not to take men who are below 18 and above 30 years of age, and further defining to Médical officers the points they have particularly to observe in the examination of recruits; this would be a guide to young medical men, and completely prevent any thing being left to the fancy or opinion of either.

Congestive typhoid fever succeeds the infliction of constitutional injury; and it will generally be found

that those who have been discharged the service, as physically unfit, have presented some of the complications which arise under the influence of this disease, as well as such as are invalided for circumstances, other than the result of accident, or old age. In both instances, emaciation, exhaustion, and debility, succeeding a low and obstinate fever, coupled with chronic rheumatism, or colliquative fluxes, will be found generally manifested, and it must be allowed, that immunity of regiments from such affections, can be better secured by the judicious selection of men, than by the administration of medicine in an hospital.

Respecting Jail Hospitals.

The typhoid symptoms which manifest themselves in the sick in jail hospitals in the rainy and cold seasons, and connected with which there is annually a great mortality, arise for want of the due admission of fresh air into the wards, taking into account always the wretched condition of the patients, who are grouped together of all ages, castes and diseases.

Material amendment might be made in the construction of prison hospitals, if, instead of a bugalow, as is common at present, filled in its interior, and verandahs, with men, some of whom are always in a filthy and offensive state, unwholesome to such as have been admitted with trifling complaints, but often locked up together at night, had we an hospital consisting of a range of houses, each occupying an area of 16 feet square in its interior, with an 8

feet verandah in front, opening to the north, so as to be in the shade all day. Patients ill of fever could then be separated from others, as the atmosphere breathed by such is far from wholesome to men, who are in hospital for the treatment of local injuries. Each apartment would accommodate six or eight patients, and 10 or 12 would be sufficient for the sick of most prisons, and would not cost half the expense of an ordinary hospital.

The humanity of our Government has long separated the idea of punishment from hospital discipline; yet the proud feelings of high caste men, imprisoned for some trifling offence, suffer more in hospital than in any ward of a jail, by being brought into contact with the wretched and hopeless victims who are suffering for the darkest crimes; moreover, the European idea of crowding men together with a view to their comfort, or the convenience of their attendants, is unfitted for this country. The more apart sick men are scattered, the better, and the benevolence of Government, as well as the blessings of Medical aid, will both be the more apparent, when the sick prisoners are allowed to group themselves into parties according to their complaints, and their prejudices.

The mortality in jail hospitals arising from the consequences of congestive typhoid fever, in unfavourable seasons is very great, colliquative diarrhœa carries off vast numbers—but judicious arrangement, and the hospital accommodation above recommended, would materially modify the severity of disease and lessen also the amount of mortality.



Painted by Dr. S.H. Babson.

REMOVAL
OF A
FIBRO-CARTILAGINOUS TUMOR
OF THE
LOWER JAW,•

WEIGHING FOUR POUNDS AND MEASURING FOURTEEN INCHES
IN CIRCUMFERENCE.

BY
S. H. BATSON, M. D.

CIVIL SURGEON OF ARRAH.

PRESENTED JANUARY 6, 1845.

A MAN named Fuqeerah, resident of Pygah, aged 30, by caste a Mahomedan, laboring under a large tumor of the lower jaw, came to me for treatment. He stated that he had suffered from the disease, for a period of *seven years*, and that it commenced spontaneously without causing pain or inconvenience; that lately during the rainy seasons he had suffered considerably from a deep seated pain in the region of the carotid, which pain extended to the back part of the neck, and that from the size and weight of the tumor, he was unable to masticate properly; that he had constant head-ache, and preternatural flow of saliva from the mouth, particularly during the hours of sleep. I recommended him to undergo an operation, to which he readily assented to. After bringing his system into a state of tranquillity by an opacation-

al purgative I proceeded to perform the operation as follows :—

1st. I fastened my patient down on a large table raised for the occasion to a convenient height.

2nd. With a scalpel, I made an incision along the upper surface of the tumor, from below the ear to the angle of the mouth, parallel with the ramus of the Inferior Maxilla, till I exposed the tumor, in fact, I cut the mouth from the left angle to the ear, which exposed the Tumor ; it was round, firm and covered with a fibrous white membrane, and attached to the left ramus on its outer surface.

3rd. I then cut through the substance of the tumor parallel with the molar teeth, till I came to its attachment to the ramus of the Jaw, when I depressed the tumor outwards and downwards.

4th. With a semicircular saw I cut through its attachment with the ramus by which the tumor was detached from the bone, leaving the roots of the Molar Teeth exposed.

5th. I depressed the tumor, dissecting carefully behind it till I came down to the parotid and submaxillary glands, which from pressure had undergone considerable lesion. Here the Hemorrhage from wounded vessels was very considerable, and I was obliged to use several ligatures.

6th. Having detached the tumor from its bony attachments, I continued to depress it, as I dissected downwards, until I cleared it from its position entirely.

7th. After removing the tumor I drew the wound together by suture and adhesive plaster, and band,

aged the lower jaw and face. About two months after the operation the whole healed and, with the exception of the cicatrix, there was not a vestige of the disease, or that a tumor had ever existed.

The parotid duct having been injured by the scalpel, temporary swellings about the parotid and sub-maxillary glands occurred, but have caused no inconvenience, and my patient recovered.

I made the accompanying drawing previous to performing the operation. The tumor after its removal resembled a cocoanut in shape ; it weighed four pounds, and measured fourteen inches.

I have preserved this tumor in spirits.

SCIRRHUS TUMOR

OF THE

INFERIOR MAXILLA

REMOVED BY

S. H. BATSON, M. D.

CIVIL SURGEON OF ARRAH.

PRESENTED JANUARY 6, 1845.

A FEMALE, by name Nuggeeah, by caste Rajpootine, aged 30, resident of Arrah, laboring under a Scirrhous Tumor of the Inferior Maxilla, came to me for professional relief. She stated that the disease commenced with a bleeding from the gums, and intense diffused pain in the lower incisor teeth, shortly after which a small tubercle grew on the under edge, and symphysis of the lower jaw, and continued to increase gradually for two years, until it had acquired the size of a turkey's egg (similar to that shown in my drawing) and would no doubt have increased still more had its growth not been arrested by Surgery. * During the last eight months the patient could scarcely articulate. The tongue was forced up towards the palate, an incessant flow of saliva was discharged from the mouth, together with pus



Drawn by DE S. H. Balsen

secreted from the surface of the tumor, which smelt most offensively. The inferior maxilla was distorted in its form, with the four inferior incisors protruding, as shown in my drawing. In this state, she was unable to masticate food, and was entirely supported by fluids, until she had become almost a skeleton.

She consented to undergo an operation, which I performed as follows :—First, I put my patient in an armed chair, having a very high back, so as to receive the occiput when the head was inclined backward, (such as is used in Ophthalmic Surgery,) I then fastened my patient so as to prevent all resistance, then with a scalpel I made a perpendicular incision, commencing from the middle and upper edge of the lower lip, straight down to the point of the chin, (resembling an inverted hare-lip.) I then cut along the outer edge of the base of the tumor parallel with the lower jaw, and exposed the outer plate of the alveolar process of the inferior incisors; then with a Hey's saw I cut through the Rami of the Jaw between the 1st and 2nd molar teeth, about an inch on each side of the symphysis; this enabled me to draw the tumor forward, out of the verge of the mouth; I then depressed it outwards and downwards, and made another incision parallel with the inner edge of the lower jaw and base of the tumor, which detached it completely.

The Hemorrhage was very considerable from the Rannine, infra-Maxillary, and Dental Arteries, I secured the former by ligatures, the latter by cautery.

I placed a pledget of tow in the floor of the mouth, with a piece of pasteboard along the outer surface of the lower jaw, to keep up uniform pressure; I bandaged the face firmly, and after the third day I removed the pledget of tow, and drew the edges of the incision made in the lower lip, at the commencement of the operation, together by suture, and adhesive plaster, which I refrained from doing at first in order that if any after hemorrhage should call for interference, I might better be enabled to reach the bleeding vessels either with forceps, tenaculum, or cautery.

The patient was supported by kanjee, &c. given through the spout of an earthen vessel resembling a tea-pot, notwithstanding which deglutition was performed with great pain and difficulty, until strong adhesions had taken place in the parts wounded by the scalpel.

The patient remained under my care for four months. With the exception of the distortion produced by the contraction and collapse of the lower jaw, she quite recovered, was able to masticate food and returned to her family.

I performed the operation in the presence of many friends, who have seen my patient since her recovery.



Drawn by Dr. S.H. Bats

A

DISEASED CARCINOMATOUS GROWTH OF THE LEFT WRIST

REMOVED BY

S. H. BATSON, M. D.

CIVIL SURGEON OF ARRAH.

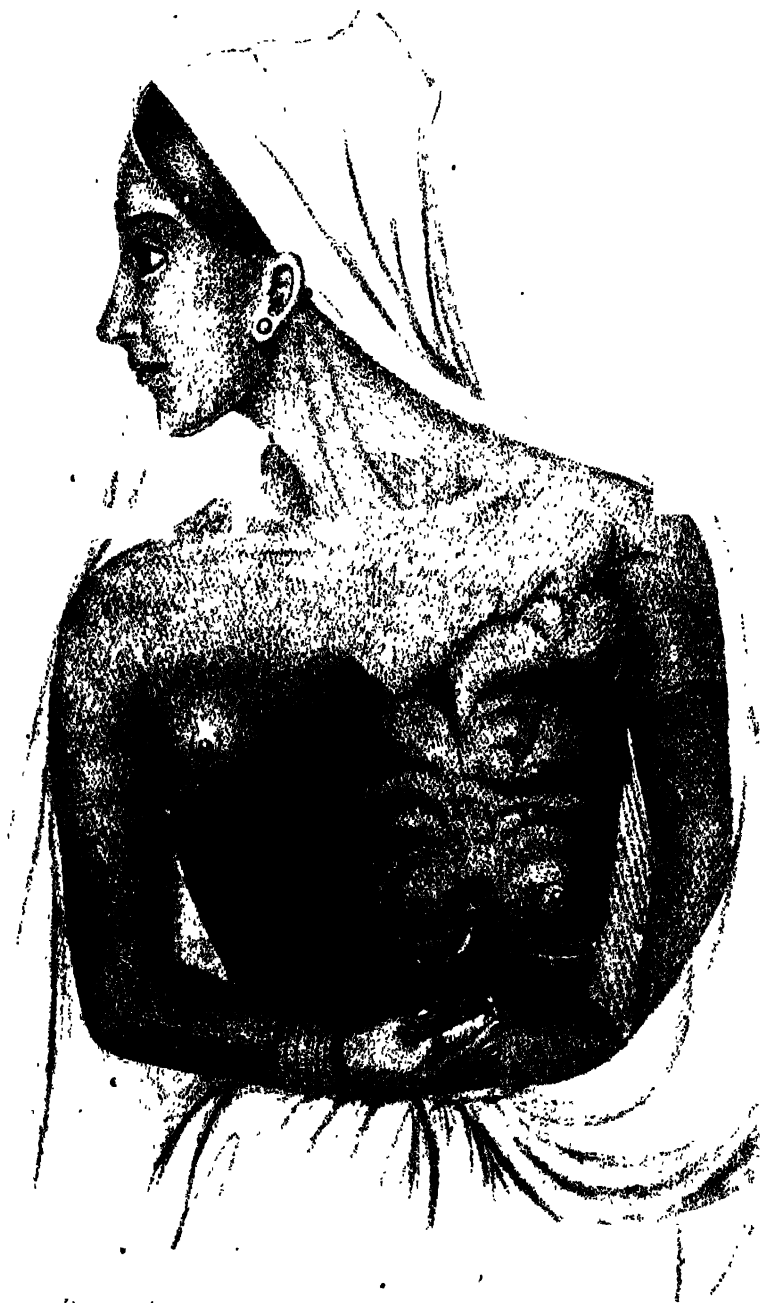
PRESENTED JANUARY 6, 1845.

A BEGGAR by the name of Bundoo Khan, aged 40, resident of Shahabad, was sent by the Magistrate to the Jail Hospital for medical treatment. He stated that from childhood he had suffered with pain and stiffness in the wrist joint, and that at times he used to loose the use of his fingers altogether. This increased, and at about 32 years of age, his wrist swelled considerably, for which he put himself under a Native Hukeem (Physician), who applied leeches, cupping and blistering, but without success ; the disease continued to increase, and the arm began to emaciate with entire loss of power, by which he was reduced to the utmost distress, and took to begging, and as a beggar, was well known in the town of Arrah. The disease of the wrist continued increasing, and at last a Tumor began to form about the pisiform bone, which diffused itself rapidly over the joint ; acquired an immense size and became exquisitely sensitive and

throbbled from time to time, particularly when the limb was held dependant, and unsupported for any time. After it had acquired the size shown in the drawing, it suppurated, and from an accidental blow burst and discharged a vast quantity of pus, and sanies. This having occurred during the rainy season, the flies got access to the wound, and deposited their larvæ, whereby shortly the diseased joint became filled with maggots. In this miserable state the unfortunate creature was sent to me, and seeing no prospect of restoring the limb to a healthy state, the extensor, flexor, and other muscles of the forearm having entirely withered, I suggested amputating the limb, which was consented to, and I removed it about midway of the Radius and Ulna.

The operation being an ordinary one, a description is unnecessary.

I made a drawing of the above disease, and have preserved the removed portion of the arm in spirits.



Drawn by D. S. H. Do

REMOVAL
OF AN
IMMENSE CANCEROUS BREAST,
MEASURING SIXTEEN INCHES IN LENGTH, TWO FEET IN CIRCUMFERENCE, AND WEIGHING TWELVE POUNDS.

BY
S. H. BATSON, M. D.

CIVIL SURGEON OF ARRAH.

PRESENTED JANUARY 6, 1845.

A FEMALE of the name of Boodceah, by caste a Mahomedan, aged 30, resident of Burrainpoor, Zillah Shahabad, laboring under a cancerous breast, of immense magnitude, came for treatment. On enquiring of her the particulars of her malady, she stated as follows :—

That she was married when twelve years of age, and bore a male child at the age of fifteen, but from absence of all milk, was unable to nourish her infant, which consequently died. She experienced shooting pains in the Mammary glands of the left breast, but that it remained the same size as the right, until one day, in a state of pregnancy, in an altercation with her husband, she received a blow from a stick on the left breast, the pain of which caused syncope, and an abortion. This occurred in her twenty-fourth year.

After the miscarriage there was no secretion of milk in the breasts. The left breast became very sensitive and a contraction in the nipple took place. Shortly after she was attacked with fever and was confined to her bed for several months, during which time the left breast continued preternaturally tender, and *hard*. The first signs of enlargement now took place, and the breast gradually increased year by year, till it had acquired the size represented in my drawing. She first became pregnant in the fourteenth year of her age, and again in her twenty-fourth year, after which she ceased to conceive altogether. From the period of abortion her constitution began to break, her strength and appetite entirely failed, and carcinomatous symptoms began to develop themselves largely.

It is difficult here to decide whether the fever was sympathetic, or whether the nucleus of cancer was by this act of violence excited to growth, producing in the first instance irritation of the part, and secondly of the system generally. The diseased breast continued to increase till her 29th year, when it suppurated and discharged below the nipple, which discharge was of thick purulent matter, occasionally mixed with blood. The wound from which the pus first gained an exit increased by the process of ulceration, and resembled a large mouth with granulations, bleeding and discharging most offensively, as shown in the drawing. When the woman stood erect and covered her breast with her clothes, the size of the diseased breast was so immense, that she looked

as if she was carrying a child supported on her arm.

I first attended to the disturbance of her general health, by giving opiates, annodynes, and small doses of mercury as alteratives. I suspended the breast by a bandage and applied warm poultices of turnips and opium, sometimes Henbane. I gave her full generous diet, and being a low caste Mahomedan, she drank her portwine, eat meat, and other nutritious food from my table, by which she gained strength, and by the application of annodyne poultices she obtained rest at night. About a month after the above treatment I proposed performing an operation, which caused her much alarm, but after being told that there was no other chance, or alternative, to rescue her from death, she consented to undergo the operation, which I performed as follows: —

I placed her on her back on a wooden hospital bedstead, with strong broad tape, such as is used for beds. I fastened her down, binding her two arms to the front legs of the bedstead, and her ankles and feet to the lower legs; after securing her thoroughly, from head to foot, I commenced the operation.

1st. With a strong scalpel I made a long incision across the root of the breast from the edge of the armpit (Tendon of Pectoral muscle) to the centre of the chest (or sternum); this first incision was about nine inches in length.

2nd. I began to dissect down to the mammary gland, clearing the axilla till I got down to the pectoral muscle; here I cut under the gland and severed

branches of the mammary artery, which had acquired a preternatural size, in order to nourish and support the circulation in the morbid growth.

I made an assistant (the native Doctor) apply a compress over the severed vessels, which I could not conveniently secure by ligature at this critical interval, (the compress was a flat cork covered with leather). I continued dissecting under the mammary gland, which was hard and resisting till I isolated it from its situation. The tumor or breast was now detached, having nothing but integuments left.

3rd. I raised the diseased breast upwards towards the face, and turned it over, making the anterior aspect posterior, and the posterior, which in its natural state was in contact with the ribs, anterior, by this I was enabled to cut the integuments exactly to correspond with the edge of the first incision made from the edge of the axilla to the sternum. I then cut the integument, and the whole tumor was removed.

I then removed the cork compress and took up the vessels on a tennaculum and secured them, after which I drew the edges of the wound together by suture and adhesive plaster ; by the last arrangement of raising and turning the breast over the edges of the wound, assimilated in length exactly.

I had not the slightest puckering of the skin, and when the wound healed, it formed a level flat cicatrix.

I continued to support my patient's strength with generous diet, and after six weeks she perfectly recovered and returned to her home.

I congratulated myself on my success in the pre-

sent case, which was of *unusual magnitude*, and protracted for years. I believe not many cases are on record of *successful* operation where the disease has run on to suppuration.

I performed this operation in the open yard, for the discharge from the breast was so offensive as not to admit of my taking my patient into my house or even the Hospital. My operation was witnessed by several gentlemen and natives of respectability, whose curiosity had induced them to attend, and I had the satisfaction of showing many of them my patient some twelve months after the operation, perfectly cured and in the enjoyment of strength and health.

SIMPLIFIED OPERATION

FOR

HYDROCELE

RECOMMENDED BY

K. W. KIRK, M. D. ASSIST. SURG.

BUNDELKUND LEGION.

READ APRIL, 1844.

HAVING successfully treated several cases of Hydrocele in the following very simple manner, I hope to be excused for making it known to the profession.

The object of the treatment is to produce mechanically the same effect which usually follows the injection of a stimulating fluid, into the tunica vaginalis testis.

On the fluid being withdrawn by means of the trochar and canula, the instrument is removed, and the scrotum stretched between the hands and between the thumbs on one side, and the bent forefingers on the other, the opposite surfaces of the emptied sac are firmly rubbed against each other at every part except that of the puncture.

This manipulation gives no pain at the time, but next day there is more or less pain and tenderness, and if this is too slight to produce activity in the absorbing surface, it can be repeated from time to time, until the desired effect becomes manifest.

In old men the effect is less easily produced than in young, but in all it is more certain than when injections are used, which in some cases have caused undue inflammation, and are generally attended with pain and inconvenience.

A great benefit this method of cure has over that by injection, is, that after the lapse of a month, or indeed at any subsequent period, if there be the slightest disposition to a return of the complaint it can be had recourse to, without difficulty to the surgeon, without inconvenience to the patient, and with every certainty of the best result attending it.

PROCEEDINGS
OF THE
MEETINGS
OF THE
MEDICAL AND PHYSICAL SOCIETY,
HELD AT THE
ASIATIC SOCIETY'S APARTMENTS.

JANUARY 7, 1843.

I. The accounts of the Society for the past year, with the several items of expenditure having been laid before the Meeting, it was proposed by Dr. Mouat, and seconded by Dr. Stewart, and carried unanimously, that the accounts presented by the Secretary be approved and passed.

II. Considerable expense having been incurred by the Society during the past year, in the purchase of Medical Periodicals for distribution of the 12 divisions of the Army, as well as in the publication of the volume of Transactions, and defraying of postage, beyond what the Funds could continue to support. After some discussion on the mode best calculated for affording to the Mofussil Members the full benefit of the Society, and encouraging an interest in it,

III. It was proposed by Mr. Egerton, and seconded by Mr. Webb, that a Committee be appointed to select the Journals for general circulation for the ensuing year.

And in reference to the above it was proposed by Dr. Mouat, and seconded by Mr. Allan, that Messrs. Egerton, Stewart, Jackson and Webb be named as the Committee for the above purpose, and to report at the next meeting.

IV. For the election of Office-Bearers during the present year, it was proposed by Dr. Mouat and seconded by Mr. Webb, that the Medical

Board be requested to continue Patrons of the Society, and G. Playfair, Esq., Inspector General of Hospitals, remain as President.

V. For the election of Vice-President, ballot was made, when the number appeared in favor of Mr. Egerton, who was requested to take the Chair in the absence of the President, and to resume the same interest in the welfare of the Society, which he had always shewn previous to his late departure to Europe.

VI. Dr. Jackson having intimated that he had no desire to be re-elected as Secretary, since he had taken the duties only as *locum tenens*, until some one was willing to perform them, and a Gentleman having now offered himself; the office of Secretary was ballotted for, and Mr. Allan Webb was chosen.

VII. The following Gentlemen were then elected for the Committee of Management during the ensuing year:—

Dr. Stewart, Dr. Goodeve, Dr. Mouat, and Dr. Jackson.

VIII. Dr. Mouat then proposed, that the thanks of the Society should be given to the Executive Officers of the past year, which after being acknowledged by the Secretary, the Meeting broke up.

FEBRUARY 4, 1843.

The proceedings of the last Meeting having been read, and confirmed.

The following gentlemen were proposed as Members of the Society—

R. Wood, Esq., Her Majesty's 10th Regiment, by C. C. Egerton, Esq., seconded by the Secretary.

J. McPherson, Esq., by Dr. Jackson, seconded by the Secretary.

1. Read a case of Snake bite, by Dr. Pringle, Surgeon, 4th Lt. Cavalry.

The accident happened to a Sepoy, on the 3d of August, the foot being the part bitten. Liq. ammonia, and æther were given internally, whilst olive oil, and liq. ammonia were applied to the wound in the foot. The foot was very much swollen on the 4th. The whole of the limb below the knee was much swelled, blood oozing from his gums as well as from the wound. On the 6th, the glands in the groin were swollen and black, the thumb and wrist of the right side also were similarly affected. 7th, the whole swollen and blackened parts were ordered to be washed with diluted nitric acid, and five drops in an ounce of water to be taken internally; under this treatment the man recovered, and was discharged cured on the 29th September.

Dr. Pringle observes, that he was deterred from excising the parts, from the difficulty which is often found in arresting the oozing of blood when excision has been resorted to.

II. Read a report on the use of Gum Myrrh, as a cure for fever, by R. W. Kirk, Esq., Assistant Surgeon.

From this very interesting paper, there is abundant reason to infer, the efficacy of this medicine in Remittent, and Intermittent Fevers, among Natives. Twelve or sixteen grains of Myrrh in three or four pills made up with soap, is the most common form in which Mr. Kirk employed it, he prefers, however, as more efficacious, the form of tincture, for which he has given a new formula, but it must be administered with greater precaution than the pills to ensure its full remedial effects.

The Statistical data of the effects of Myrrh, on the Sepoys in Hospital, labouring under intermittent fever, are very concisely stated, as follows:—

“ On the evening of the 28th, at $\frac{1}{2}$ past 5 o'clock, these pills were given to ten men expecting fever in the night.

4 had no fever.

3 had a slight heat.

3 had a slight accession of fever much milder than any former attack.

10

On the morning of the 29th, ten men received each four pills, who expected fever during the day.

4 had no fever.

1 had a slight heat at 4 P. M.; former attack lasted the whole day.

2 had severe fever, for two hours only, whereas the former attack lasted 12 hours.

1 had heat for an hour, where the former attack lasted the whole day.

1 fever for 2 hours, former attack lasted 3 hours.

1 a case of severe intermittent fever apparently uninfluenced by the medicine.

10

On the evening of the same day, 12 patients expecting fever in the night, received 4 pills each, at 5 P. M., and 3 each at 9 P. M.

8 men had no fever.

1 had slight heat for 2 hours, former attack lasted from 7 P. M. to 4 A. M.

1 had fever for an hour and half, former attack 3 hours.

1 had fever from 9 to 11 P. M., former attack lasted till 9 A. M.

1 case of remittent not affected.

' On the morning of November 30th, 4 pills were given at 7 A. M., and 3 repeated at 10 or 11 P. M., to 28 men expecting fever that day.

18 had no fever.

8 were much benefitted having only a slight heat or very slight accession of fever.

2 not apparently benefitted.

28

It is a matter of regret that the use of Myrrh in this disease in Europeans has not yet been subjected to a similar satisfactory test.

III. On the subject of Mesmerism an interesting communication from Dr. Elliotson, which had been presented to the Medical and Chirurgical Society of London, was read by Dr. Mouat. It would seem to shew that operative Surgery may essentially benefit from the marvellous power which this new agent exercises in producing perfect insensibility; a case being set forth of a man losing his leg by amputation, and being alike unconscious either of the pain, or deprivation, until aroused from the mesmeric trance.

The second marvellous demonstration which was narrated, would seem more applicable to the purposes of history or of judicial investigation, (and may be of most essential value in this country) since it is stated that the *clair Voyant* endowment constrains a person to speak the truth, and nothing but the truth, respecting circumstances and events the most distant as to time, and place, and in which the possessor of this faculty has never himself been personally engaged, that he should be able even (as in the case of the distinguished officers mentioned) to correct the person who has been a principal actor.

IV. The announcement by Dr. Playfair that it was probably the last time of his presiding at the Society was heard with sincere regret, notwithstanding his kind offers of exerting himself with equal zeal in its favor, on his return to Europe.

MARCH 4, 1843.

The President, in recording the unanimous vote of thanks to Dr. Playfair, his predecessor in the chair, at the last meeting, expressed his regret

that there was so little probability of its reaching him before he left the shores of India. At the same time he assured the meeting that it would give him great pleasure to communicate to Dr. Playfair this expression of the high estimation in which he had been held by the Medical and Physical Society of Calcutta, and their regret for his loss.

A letter to the Government praying for the abolition or reduction of the postage upon those European medical periodicals which the Society at its own expense supplied to the twelve divisions of the Army, which letter it had been Dr. Playfair's intention to forward, was read to the Meeting and signed by the President.

(Donations).—The Secretary read a note from Dr. Jackson forwarding Chinese Anatomical Charts, a donation to the Society from Asst. Surgeon Hutchinson, of the Bengal Medical Service.

The January number of the *India Journal of Medical and Physical Science*, was also presented to the Society by the Editor.

The various English and Continental Medical Journals received since the last meeting were laid upon the Table.

The following papers were then read and discussed :

1. A paper on the minute arrangement of the capillaries, more especially in the mucous membranes, by W. Crozier, Esq.

The report of Mr. Crozier's very interesting observations must of necessity be imperfect, as the Secretary has not the paper to refer to. The capillary vessels were described with reference to their situation, the mode of injecting them, with colored size from aorta or vena cava, their arrangement and use, with most beautiful demonstrations of them in the injected state, as observed in the stomach and intestines of a great variety of animals, exhibited by means of the compound microscope. This instrument has lately led, both in England and Germany, but more especially in the latter country, to important discoveries in those vital actions of secretion, absorption, and nutrition, in which the capillary vessels act so important a part.

The mode of arrangement which the mucous membrane assumes upon the villi, of various animals was demonstrated most perfectly. The villus, which to the naked eye appears a simple capillary tube, was shown to be a complex organ whose chief end seems to be the multiplying of the mucous surface to an incalculable extent, for the ramification of capillary, lacteal, and absorbent vessels.

No open mouths were seen upon any part of these villi, nor through any of the various distributions of the capillaries. The *absorption*, therefore, which is known to take place from the capillary plexus of blood vessels on the villi of intestines is probably effected by imbibition—as the most recent

writers, Goodwin and Bowman, have concluded, whilst *selective* absorption and *selective* secretion may both be performed by the agency of cells.*

The President remarked upon the beauty of the preparations which had been exhibited, and the pleasure which they had afforded to the meeting, with thanks to Mr. Crozier for the paper which he had read.

II. Removal of the head and neck of the left Os Humeri, from a gunshot wound, by P. F. H. Baddeley, Esq., Bengal Medical Service.

The Secretary then brought to the notice of the Society a preparation, from the Museum of the Medical College of fractured head of the Os Humeri caused by a musket ball. At the same time, he drew a parallel between the successful issue of this case operated upon by excision of the head of the bone—and that of a European soldier now in the College Hospital in whom the head of the bone was retained, and the attempt made to save the limb by ankylosis. The cause of this accident being the same in both instances, an attempt at self-destruction by discharging a musket at the heart, the ball glancing off owing to the resistance of the ribs, had in both instances passed through the shoulder, fracturing the head of the bone. In this case where Dr. Baddeley excised the head of the bone, the man was well in six weeks. In the European, where the head of the bone was not cut off, the man was now lying in the Hospital miserably reduced after sixteen months suffering, and likely to have sixteen more; whilst in the very next ward, the Hindoo, whom Dr. Green had so successfully cured, by cutting off the head of the bone, was also to be seen, with a sound and useful limb. All these cases illustrated the advance of surgical science; for it is hardly too much to say that but a few years ago, every man of them would have lost his limb at the shoulder joint.

The case is communicated by Mr. Healy—"The subject of this operation was a young soldier in one of Shah Sooja's Infantry Corps. He had fancied himself grieved, by the interference of a *petit corporal*,^a dressed in a little brief authority;" and to convince his comrades how sensibly he felt the imagined indignity, and to manifest his zeal for the service he was then engaged in, he loaded a musket, and discharged it at himself. The ball entered below the coracoid process, shattered the head of the Os Humeri, and passed out, on a line with the acromion process. Immense tumefaction and diseased action succeeded the injury, which were relieved by an antiphlogistic treatment. Six weeks subsequently, Dr. Baddeley extirpated the head, neck, and shattered fragments of the bone. Several small spiculae of bone had come away prior to this; but the injury was so extensive, and his constitution appeared to be declining so rapidly, that, to have awaited for

* See *Forbes' Journal*, Oct., 1842, p. 566.

the tardy operations of nature, would most probably, have consigned the man to a premature grave. In addition to the longitudinal incisions made down the centre of the deltoid, he had to make another at right angles with its inferior portion, to enable him to expose the parts; and even then, the fresh difficulties that he had to encounter, were very trying, as the part was one mass of disease. A few strokes of an amputating saw completed the operation, and the posterior circumflex artery was the only vessel that required securing. This took place on the 10th of April last year, and on my return to Kandahar in August, Dr. Baddeley had the kindness to send the man over to me, that I might see the result of the operation. It could not have terminated better. He had become quite strong and stout, and had completely lost the sickly complexion that he presented previous to the operation. The wound had been healed some time, and a very slight discharge alone issued from the aperture made by the entrance of the bullet. He had complete use of the fore-arm, and could raise the arm in a slight degree, and bring it forward to a similar extent. Some degree of swelling was still apparent about the shoulder, but so trifling, that the parts afforded every promise of the man having a very useful limb in a short time. The poor fellow always appeared very grateful, for what had been done for him.

III. Mr. O'Shaughnessy next brought to the notice of the society an interesting case of operation for Hare-Lip, in a child *five days old*, in whom beside the hare-lip the hard palate also was doubly cleft, and the soft palate divided in the centre. The operation upon the double cleft of the lip was completely successful.

The child was born of young and healthy parents (Armenians) free from deformity of any kind themselves. The upper lip was doubly cleft, leaving in the centre a triangular shaped portion, adhering to a projecting piece of the alveolar arch, which forced it upwards and forwards, and against the septum of the nose. The fissure on the left side was continuous through the nose with a fissure in the palate; that on the right side did not enter the nostril, but approached within less than a line of it. The hard palate was also doubly cleft, and the soft palate divided in the centre. The nose was very much expanded, and the infant always lay with the mouth open, being incapable of keeping it closed for any length of time. The child was unable to suck, but it was nevertheless remarkably strong and healthy looking.

The child being rolled up in a cloth to keep the extremities quiet, and so held that the head rested between the knees of the operator, the operation was performed in the usual way, a cornea knife being employed to make raw the edges of the lip, instead of scissors, as recommended by some sur-

geons. The central projecting portion of alveolar arch was removed with a strong pair of nippers. There was very little blood lost, and none swallowed by the child during the operation, as the head was thrown forwards, and the mouth cleared as soon as it was observed that there was any flowing into the throat. When all bleeding ceased the edges of the flaps were brought together, transfixing them with two long woollen needles, ground spear-pointed for the occasion, and the operation completed by applying the common hare-lip suture. The child fell fast asleep almost immediately after the operation, and during the remainder of the cure, it had not a single febrile symptom, nor did any thing interfere with the favourable progress of the case. The needles were withdrawn about fifty hours after the operation, without disturbing the child, who was sleeping at the time. Strips of adhesive plaster were then applied, and allowed to remain on till the seventh or eighth day, when all dressings were removed, and the lip was found to be perfectly and evenly united. Nothing could be more satisfactory than the result of the operation upon the lip, which will materially facilitate any future attempt upon the palatal deformity.

Mr. O'Shaughnessy stated his reasons for operating at so early a period to be; *first*, to remove as quickly as possible the cause of the great distress, which the deformity of the child appeared to produce to the parents. *Secondly*, the conviction in his own mind that the child would fall off in strength and therefore be less able to bear the operation if put off for some months, than if performed at once, while it was strong and healthy. *Thirdly*, because it is well known the restorative power in very young children is very great, and the earlier in life an operation is performed the more trifling are the traces of it afterwards; and lastly, because so young an infant has no mental sufferings, neither can it offer any resistance by its struggles to the operator, a matter of much consequence, as children even but a few months old are very difficult to manage.

This case was accompanied by an admirable drawing, (executed by Dr. Alexander Hunter) of the child previous to the operation.

IV. The next paper for discussion was a case of tubercular deposition in Mucous Canals—especially in the bronchial tubes, by the Secretary; it was deferred till next meeting in order to exhibit Mr. Crozier's Compound Microscope.

APRIL 1, 1843.

PAPER I.

Cases of tubercular deposition in the Bronchial tubes, by Allan Webb, Esq.

Mr. Webb observed, that as the existence of this form of *bronchial tuberculosis*, (as it is called by Rokitanski,) however much insisted upon by Carswell, and even most beautifully and accurately delineated in his work, was still absolutely denied by others,—the very denial being proof of its rarity; he thought these cases might be interesting, especially as some of them had been observed, though not published, before the subject had received its present elucidation by the labors of these eminent pathologists.

But another more practical interest attaches to this form of disease, a knowledge of its existence strengthens the grounds upon which we may hope for a favorable issue, in cases so commonly deemed hopeless as those of tubercular Phthisis, where to mention the name of “*consumption*,” and the existence of a cavity, is usually to bid the patient and his friends despair. Now, if it be known, and proved, that tubercular matter may plug up, and dilate a bronchial tube—but the lung itself, *i. e.* the pulmonary structure, be free from even a single tubercle—that this tubercular matter may soften, and be discharged, giving the most fatal signs of ordinary Phthisis, (the pectoriloquy and tubercular sputa,)—but yet that the lung being sound beyond may yet recover as occurs in bronchitis, and especially if this state can be detected during life, we may hold out to our patients, rational ground of hope, which we could *not do* conscientiously, without such distinction being known.

It will be seen, in case I, that there was no tubercular matter found in any other part of the lungs than in the bronchial tubes.

• *Case I.—Occurred in a Boy.*

Reuben Cramp, aged 7, admitted 7th March, 1832, with acute peripneumony of 4 days duration, strumous appearance, chest narrow.

Respiration 88, *rale crepitant* heard at the base of the right lung, *ralesonore* all over the back. He lies on the left side which cannot be examined. Skin hot, pulse rapid 140, has great thirst, tongue coated with grey, coughs seldom.

V. S. ad. 3vi.

Baln. Tepid.

Mist. Emetica.

8. Much better, vomited often, bowels open freely, cough more croupal.

Hirud. ij. to the trachea.

R Pulv. Ipecac. gr. viij.

Cupri. Sulph. gr. iij.

ft. Emetic.

9. Little altered, expectoration tenacious, uses his fingers to expel it.

Repet. Emetic.

10. Better, vomited freely, bowels acted on 4 times, respiration 86, has great thirst.

R Vin. Ipecac. m xv. Liq. Am. Acet. ʒij. Aquæ ʒvi. every 4 hours.

12. Is delirious, skin hot, pulse rapid.

V. S. ad ʒ iv.

14. Better, face pale, has pain in the bowels, little cough, pulse 140, respiration 60, still vociferous, furtive expression of eyes.

16. Died.

Examination.

Head effusion between the pia-mater and arachnoid, also into the ventricles. Brain softened.

Chest.—*Right lung* solidified, no part crepitous, not deeper colored than the healthy organ, but when shed offering innumerable hard whitish points, varying in size from mustard seeds to common peas, at first taken for ordinary tubercles, but proving to be hardened secretion of the bronchial ramifications themselves; portions of more blood red color towards the base were seen, without a trace of tubercles in the pulmonary tissue itself.

On tracing the bronchial tubes, the mucous lining of some of them was pale, their calibre dilated, containing this hardened matter (a semi-concrete caseous matter) and pus; others of them were of a livid violet color, containing bloody mucus.

Left lung more healthy, but presenting the same general character.

Abdominal viscera were healthy, (I understand, for illness prevented my attendance—the lung I examined in my own room.)

This is evidently a case of the *primitive bronchial tuberculosis*—described by Rokitsanski as occurring especially in children. Since the last meeting of the Society, the very accurate description of Rokitsanski has been given by Dr. Forbes, in his journal, the remarks on tubercular phthisis are of such high value, as might be expected from Dr. Forbes.

BRONCHIAL TUBERCULOSIS WITH ANASARCA.

Case II.—C. P., aged 30, admitted January 23th, 1832.

Was bled (ad ʒv) before admission. Has dark hair and eyes, delicate complexion, not much emaciated. Never been subject to other illness than severe cough. Last attack commenced a month ago. Three weeks since,

began to spit thick yellow stuff; a week ago, the legs began to swell, and are now œdematous, and *pil* on pressure.

Voice hollow, cough not very urgent, percussion more dull than natural on both sides; on right side the chest is more dull than on the left. Respiratory murmur is mixed with gurgling sound at upper anterior part of the chest on right side, where pectoriloquy is distinctly heard. No pain in the chest. Tongue clean, moist, red at tip and edges, appetite good, bowels regular, urine free, does not sweat at night, has thirst, especially in the evening, skin cool, heart's action apparently natural, pulse 86 hard.

R Tinct. Digital. \mathfrak{m} xv. bis die ex aquâ sum. Mist. Mucilaginos \mathfrak{z} i. ter die.

28. Feels weak, pulse more frequent and feeble, legs less swelled, urine more copious, cough more troublesome. Expectoration thicker, tongue clean, bowels open, appetite good, skin cool.

Low diet.

31. Has giddiness and faintness on assuming erect posture, cough troublesome, sleeps well, noise of softened tubercles heard at apex of *left* lung.

Omit. Digitalis.

Feb. 2. Little alteration.

6th. Little altered.

R Mist. Ferri C. \mathfrak{z} j. ter die.

9th. Stomach rejects the mixture, cough less, expectoration less, legs swelling again, pulse 100, feeble.

Pulv. Cal. cum Rhæo, Stat.

Omit. Alia.

12th. Much the same, legs swelling more since leaving off the medicine, pulse quicker.

R Pulv. Digitalis et Scillæ.

\mathfrak{a} gr. j. 4tis. horis

15th. Has taken Digitalis gr. j. ter die, last four days. Has now faintness and fluttering on slight exertion, pulse feeble, intermittent, 92 when recumbent, rose to 112 on sitting up in bed, cough less, expectoration little, common colorless mucus, emaciation goes on, no night sweats, face very pale.

R Tinct. Digital. \mathfrak{m} xv. ex aquâ Cin. O. M.

17th. Much same.

Omit Digitalis.

20th. Complains of tightness in abdomen which is swelled. Œdema of legs increasing, cough and expectoration diminished, pulse feeble, 90, tongue clean, bowels open.

Pt. in usu Tinct. Digitalis, O. M.

23rd. Legs are less swelled, makes considerably more water.

Pulse regular 96, feels rather faint, cough more urgent, a few streaks of blood in expectoration.

25th. More cough, no pain in chest, makes more urine, pulse 86, unequal, respiration 24, *Rale crepitant* heard on right side with *son mat* on percussion.

27th. Not so much swelling of abdomen, nor extremities, cough more, urgent, expectoration trifling, of colorless mucus, pulse 98, tongue clean preternaturally red, bowels open.

29th. Swelling of legs, more cough, and expectoration less.

Left the Hospital at his own desire.

March 28, returned again.

Has been away three weeks, legs and thighs exceedingly oedematous, red blush inside latter which are painful on pressure, had diarrhoea this last week, cannot stand from debility, makes little water, does not perspire

Chest sounds very dull on percussion, is also oedematous, *râle sonore* general over anterior surface of chest, (*Posterior* cannot be examined since he can neither sit up nor lie on his side,) resonance strong under clavicles, voice not strong enough to determine pectoriloquy, even here *râle sonore* is so loud as to obscure other sounds, respiration 28, countenance sunk and anxious, pulse too feeble and indistinct to be stated, upwards of 100, tongue very red, thirst great, appetite bad, bowels purged.

Wine 3 iij.

29th March. Called to him early in morning, found him dying.

Convulsive respiration, loss of pulsation, of consciousness, &c.

Post Mortem examination 36 hours after death.

External appearance.—Body generally anasarcaous, blistered in many places, some of which have discharged a plentiful quantity of serum.

Head.—Not examined.

Chest.—*Right lung* universally adherent to the costal pleura, pericardium, and diaphragm. To the central tendon of the latter it adhered by a substance like ligamentum flavum quarter of an inch in thickness. *Left lung* presented old cellular adhesions, and the pleura of this side contained 12 oz. serum. *Both lungs* externally of a blackish grey color, and when cut yellow serum oozed out in great quantity not mixed with blood, in some places little, in others not at all spumous. More minute examination shewed the upper part of the *right lung* to be blue as indigo, containing bony productions here and there of the size of horse-beans, some parts, an inch in diameter, were nearly cartilaginous, sinking in water. A portion of the *middle lobe* (*right*) appeared white, contrasted with surrounding blackness, was emphysematous,

light, crepitous, when sliced, bronchial ramifications oozed out semi-concrete putty-looking matter. *Lower lobe*, crepitous anteriorly, œdematous posteriorly. The *primary bronchial* tubes were thicker and stronger than I ever recollect to have seen, with thick strong cartilaginous rings. Mucous membrane in thick longitudinal folds. The spur-like processes at their bifurcation strongly developed (like semilunar valves). Whenever a bronchial tube entered a portion of œdematous lung it lost instantly all its peculiar character, becoming thinner than a vein, and leaving the pulmonary substance to be seen distinctly through it; in many cases this transition was marked by a ridge in the mucous membrane, many of the tubes were dilated to the size of duck quills even at the very periphery of the organ, while others were very much dilated at the root of the lung.

Left Lung.—The superior part of the *upper lobe* was literally black as ink, hardened, sinking rapidly in water. On slicing it, a small cavity about the size of an almond, filled with muco-tubercular matter (caseous) was seen—two or three others also occurred filled with concrete matter (intermediate of caseous matter, and concrete mucus) with difficulty got out of the cysts, which were lined by membrane black as ink, apparently formed by bronchial tubes dilated to the size of common nuts. Some adjacent tubes contained hardened matter strikingly resembling the contents of these cysts. The black and completely solid portion of lung before described, passed gradually into more healthy substance. The base of this upper lobe was united to the lower lobe by fibro-cartilaginous substance.

Lower lobe was almost universally œdematous, bronchial tubes of left lung were similar in character to those of the right.

Heart, very small, scarcely half the usual size, left ventricle would hardly contain a green walnut, its walls, at the apex even, were an inch thick;—right ventricle natural, but contained a coagulum so firm as to be with difficulty got out, same kind of coagula existed in all large vessels leading from the heart. In the divided ramifications of the pulmonary artery they projected like injection from a divided vessel, so tenacious were they as to be drawn even from the smallest branches, thus giving a fac-simile of the numbers, size and disposition of the branches that contained them.

Abdomen.—Liver pale, enlarged, as were the kidneys also, other viscera healthy, a pint of serum in general cavity of peritoneum. Mucous membrane of colon shewed slight elevated spongy patches in its sigmoid flexure.

Reflections.—What caused the dilation and thickening (hypertrophy) of the bronchial tubes? Did they produce pectoriloquy? What caused their thinning (atrophy) so manifest in those entering the œdematous portions of lung?

Did hypertrophy of the left ventricle alone cause dropsy? How?

Was the formation of coagula a consequence of loss of serum?

Was the solidification of a part of the lungs the consequence of former inflammation?

*Can the contents of these Cysts be considered as real tubercular matter? There being no tubercles elsewhere.**

Case III.—J. G. aged 27.

Has had spitting of blood, cough, purulent expectoration, night sweats, and diarrhoea for a month past, health before this robust, lost flesh and strength rapidly since;—face anxious, lips livid, respiration quick, attended with pain, pulse frequent, skin hot, bowels confined.

1 Feb. R Low diet.

V. S. Ad $\frac{3}{4}$ vii.

Ant. Tart. gr. ij.

Mag. Sulph. $\frac{3}{4}$ j.

Aqua $\frac{3}{4}$ viij M. $\frac{3}{4}$ j. 4tis horis sumend.

2nd. Is easier, slept better, medicine nauseates, percussion generally dull, better towards the base of the chest. Respiration quick, *rale crepitant* heard on the sides of the chest. Respiration bronchial at the back of the chest, sputa, tenacious, adherent, frothy, streaked with blood. Tongue white, bowels open, skin cool, extremities warm, resonance very strong at apex of each lung, almost amounting to pectoriloquy, voice hollow, cavernous.

3rd. Slept better than for a month past, bowels purged, cough better, sputa not so frothy nor tenacious.

R Mist. Mucilag.

Pil. Sap. cum. Opio. *h. s. s.*

9th. Much same.—Pt.

16th. More cough and fever, respiration 30, cough urgent hard, sputa streaked with blood, pulse 100, face flushed, skin hot.

V. S. Ad $\frac{3}{4}$ vi.

13th Feb. Same symptoms, relieved by V. S. Ad $\frac{3}{4}$ vi.

15th. Cough worse, with pain on inspiration, pulse 112, respiration 30, *murmur de frottement* is heard on the right side.

20th. Better.

R Acid Hydrocyan, gtt. ij.

Aqua Distil. $\frac{3}{4}$ i. ter die sum.

* These reflections were written in 1832.

25th. Cough worse, respiration bronchial 26, pulse 134, says medicine makes him sick, is in no pain.

R Pil. Conii Ext. cum. Ipecacuan. h. s. s.

27th. Has giddiness, pulse 130, respiration 30, cough worse, expectoration less, tongue clean, bowels open.

V. S. Ad. $\frac{3}{4}$ vi. (cupped and buffed.)

28th. Face flushed, lips and tongue dry, skin pungently hot, pulse 136, respiration 30, pectoriloquy heard above the left nipple, respiration bronchial on the right side under the clavicle, respiration is wholly abdominal, chest fixed, sputa watery, frothy, spotted with blood, half a pint to-day, percussion gives *son mat* over the whole of the front of the chest.

V. S. Ad $\frac{3}{4}$ viii. (neither cupped nor buffed.) *R* Pil. Sap. cum Op. gr. v.

O. N.

Pt. in usu acid. Hydrocyanic.

3rd March. No better, respiration 36, pectoriloquy heard under the right clavicle, and almost perfect for a hand's breadth below. Nearly same phenomena observed on the left side, pulse 140, skin hot, bowels regular, tongue white.

R Acid Hydrocyanic, *m* ij. 2nd. quaq. horâ 4th. Sinking, great anxiety and depression of spirits, face livid, body covered with cold sweat, pulse fluttering—says, "he will want nothing more."

Died 2 A. M.

Examination 24 hours after death.

Head.—Healthy.

Chest.—Lungs do not collapse, adherent to costal pleura by vesicular adhesions, with fluid in the cells. This also is observed between lobes of right lung, these adhesions are loose, admitting motion. Not so those on the left, which were close. Lower lobe, however, of the left lung was free, and floating in about a pint of serum.

Both lungs externally were of a mottled light color. *Mucous membrane* pale, slightly eroded about the chordæ vocales, pale in the trachea until near its bifurcation, when it became injected of vermilion hue, about the first bronchial divisions. Some of these latter were observed after passing on the right side a short distance into the lung to dilate into cavities of various sizes. Some pod-shaped, would again contract and dilate again into cavities, which would contain a common nut;—some continued dilated till within a line or two of the surface of the lung, and were filled with tenacious tubercular matter, which could be drawn out like coagula.

Most of these dilated tubes seemed to lead to layers of muco-purulent or

softened tubercular matter. Some 'cavities' again were anfractuous, not lined by mucous membrane, but merely shewing broken-up pulmonary tissue. Others again were lined by a continuation of the bronchial mucous membrane, and even the cartilaginous rings were visible to within a line or two of the periphery of the organ.

The intermediate substance of the lung was occupied by tubercles, and grey matting thrown out between them so as to render it perfectly impermeable to air, excepting its base, where being more widely scattered, they left between them intermediate portions of healthy lung. When sliced this right lung had a grey granite appearance, presenting numerous points whence pus exuded, and some empty cells before described.

Left lung presented little difference, superior part of upper lobe resembled a honey-comb, so numerous were the cavities. But in greater part of them the bronchial membrane could not be traced throughout, for they were merely practised in the broken down pulmonary structure and smeared with pus. Some were filled with tubercular matter or pus, a large vomica that would contain an orange, was seen in the base of this upper lobe, communicating freely with a bronchial tube. On slicing this lower lobe, it was seen to be studded with points of pus. Some as large as a pea, a little of the lung only remaining at the base, not occupied by tubercular infiltration. The bronchial tubes in this lower left lobe which contained the pus were of a deep violet colour.

Abdominal viscera healthy.

Remarks.—The deposition into the bronchial tubes of tubercular matter is distinctly observed notwithstanding the co-existing bronchitis, the dilatation and hypertrophy of the tubes well marked, and the correspondence of the pathological phenomena with the facts recorded during life very satisfactory, especially the vesicular adhesions as pointed out by the *murmur de frottement*. This and the former case very strongly bear out the truth of Rokitasky's description.

"It is a disease of the terminal branches of the bronchi; at least it develops itself originally in them, and extends from them into the larger tubes. It occurs especially, like pulmonary tuberculosis (ordinary phthisis), in the upper lobes, but is contrasted with that disease, in that it is frequent in the peripheral or superficial ramifications, affects a larger section of the bronchial tree, and that, on a transverse section, *one finds the pulmonary parenchyma traversed by large, thickly-walled, bronchial tubes filled by caseous tuberculous matter*. It is often combined with tuberculous infiltration of the pulmonary parenchyma, but often is completely independent. In the latter case the obstruction of the bronchial tubes leads to obliteration of the vesi-

cles, and wasting of the parenchyma connected with them, and one then finds the obstructed tuberculous bronchi branching in a ligamentous, crivelled, elastic, and tough tissue. The tuberculous matter, in these cases, passes through its usual changes. It either softens, and then the bronchial walls are not unfrequently destroyed and involved in collections of tuberculous pus, collections in which (contrary to those which are far more frequently formed by softening of pulmonary tubercle) the destruction of the bronchi is the primary change; or else the *tuberculous matter undergoes another, the calcareous, metamorphosis, which is especially apt to occur when the bronchus has been completely closed by it.*"

PAPER II.

Fatal Case of Hydrophobia, by R. W. Wrightson, Esq.

On Saturday morning, November 5, 1812, at 10, I was called to see Mr. ———, who had been suffering nearly the whole previous night. He is about 33 years of age, temperate, 4 years in India, fine, tall, muscular figure, just returned from sea, apparently in rude health.

I found on arrival the room darkened, the curtains closely drawn, and the greatest disinclination on the part of the patient to being seen. He was little disposed even to talk of his complaint, saying it was but a cold or rheumatism, and that it would soon be better.

To enable me to judge of his state with greater certainty, I opened the window and drew the curtains, the slightest breathing of air upon his body immediately threw him into frightful convulsions of the muscles of respiration and of the limbs.

The convulsive catches and gurgling of the throat were most distressing to him. These peculiar spasms and struggles were so exactly similar to what I had observed in two other cases of hydrophobia that I was at once impressed with the conviction, that it was this fearful malady which I had to contend with.

On enquiry I found that he had been sleeping on the deck of his ship, on Thursday night. In the morning he found himself suffering from pain, which he thought rheumatic, of the right side of the neck, chest, right arm, and face; during the day he felt exceedingly depressed in spirits, complained of stiffness and soreness about the throat. On retiring to bed he was unable to sleep, became feverish and restless, and was observed by the inmates to laugh frequently, then sigh deeply, and to wander about his room.

Towards morning he felt thirsty and wished to have water. On attempting to take it, he found an utter inability to convey it to his mouth, and

when assisted by his friends, after some resolute attempts to swallow, he at length threw out his hands shrinking away and begged them to desist.

His friends now suspected hydrophobia. They remembered distinctly that about six weeks ago, a strange dog took up his abode with them, without any enticement. The animal used to slink away and conceal himself, generally under the bed. Besides these peculiarities of his habits they noticed a quick panting respiration with foaming at his mouth the day previous to the actual attack upon Mr. ———, this occurred as the animal was making a snap at a child; Mr. ——— ran and interposed his left hand, which was slightly lacerated in the finger by the bite of the enraged animal.

The dog was instantly shot and little attention was paid to the wound, brandy was applied, and it healed in three days.

Being thus confirmed in my opinion as to the disease, by the history now related, I determined to give a fair trial to strict antiphlogistic treatment combined with mercury and sedatives, as it was abundantly evident that his fine constitution and great strength would give it a fair chance of success; his pulse was full and strong but natural.

I therefore at once bled him to two pounds, and ordered calomel ℥j.

Nov. 5th. 10 A. M. *Opil. Ext. gr. v.*

3 P. M. Spasm had been more frequent and more severe, the same inability to drink, in spite of the most determined, most heroic efforts to overcome the spasms; mind clear, free from any apprehension as to the nature of his complaint, but impressed with a sense of impending and imminent danger.

I now ordered 30 leeches to the upper part of the spinal column, they were of large size (and must have drawn 3 xxi.) On their removal, I applied lunar caustic from the neck to the sacrum, making one long issue, and prescribed *Ol. Terebinth. Ol. Ricini ā ʒiiss. Ol. Crotonis ꝑt. iv.* as a draught.

10 P. M. He had vomited about a pint and a half of frothy mucus. Nothing in fact but a mass of foamy frothy, ropy fluid, bowels not open, pulse 96, irregular, spasm renewed with violence upon the slightest breath of air.

10 P. M. He says he is better and the pain of his shoulder and face relieved by the caustic, and with great consolation, that he can suck liquid through a rag. The expression of his face however is marked by such peculiar anxiety and distress as to give the conviction of increased danger.

I again opened the vein and abstracted a pound of blood and ordered calomel ʒj. *Opil. Ext. gr. xv. in Pil. vi. divid.*—"One every two hours."

4. P. M. of the 6th I was again called to him, found him cowering under his bed, lying on his face, which was moreover buried under his folded arms. Frothy saliva flowing freely from his mouth, refusing to be moved at first, but by persuasion was at length induced to return to his bed.—Ordered Injection of Ol. Ricini. Ol. Terebinth, ā ʒii. Ol. Crotonis gr. vi. Ext. Gambog. gr. v. Sago, (thin) O J. to discontinue the pills. Bowels not relieved.

He now became reckless, although conscious of passing urine, would not take the trouble to rise to void it.

I requested Dr. Webb, would accompany me, which he was kind enough to do; the following is his note of visit at 8:—

“He was still closely shut up, every avenue of light and air excluded, he took no notice of our entrance, he was nearly naked, his silence only interrupted by deep bursts of respiration like that which accompanies great muscular exertion, his head doggedly held down between his arms and the bed; this last for a full yard around his face, was soaked with saliva, urine passing involuntarily, slightest breath of air from a fan which he could not see, produced a recurrence of the spasms, which bent him forward towards the bed. When requested to drink he held out his hands in the most deprecating manner, as if struck with horror at the bare proposal, beseeching us to leave him, for he said the very sight of water makes him “jump all over.”

“His attitude was exactly that of the sketch which Sir C. Bell has given. Some time after, as he gulped some portion of saliva he exclaimed, as if some fleeting ray of hope had crossed his mind, that *did* go down. He then said “my moments are numbered you can do nothing more for me.”

His pulse at this time was fleeting, skin cool and moist. He entreated earnestly for a minister of religion, for whose arrival he was anxious. Died at 11.

Just before his death he cowered more closely, begged to be left alone, and was found dead when his friends again looked at him.

Post Mortem examination six hours after death. A highly congested state of the vessels of the scalp and subjacent tissues, particularly at the back of the head.

The dura mater adhered but slightly to the skull throughout, and was easily removed by half the force usually required, its vessels were congested. The longitudinal sinus contained several clots of coagulation, about the size of a pea, connected together by tough bands of fibrine, which bands were again attached to the surface of the sinus, and in many places there appeared layers of fibrine resembling a false membrane.

There was considerable effusion under the arachnoid, raising it like a

blister. The vessels upon the brain and between the convolutions very much injected. The lateral ventricles contained 3 iv. of fluid. The choroid plexus highly congested, effusion at the base of the brain 3 iii. Medulla spinalis shrunk to $\frac{2}{3}$ of its natural bulk, and the space thus left in the canal occupied by serum. On removing the spines of the cervical and dorsal vertebrae the theca presented a bloodless appearance, and hung loosely about the spinal marrow. On dividing the cord at the last dorsal, great difficulty was experienced in dissecting the theca from its connections with the anterior part of the spinal canal, it was of a deep vermilion colour and shewed marks of inflammation and congestion from the foramen magnum to this point. The processes covering and accompanying the cervical nerves had the same appearances, particularly those of the 3rd, 4th, 5th, and 6th. The spinal marrow was shrunk and softened, especially in the centre, and the vessels on its anterior part highly congested, much more so than those on the posterior surface.

In consequence of arrangements having been made for the funeral further inspection could not be made.

The following very interesting communication recommending the full use of mercury by a non-professional gentleman, addressed to Dr. Wrightson, was read at the meeting:—

Hourah, 26th November, 1842.

MY DEAR DOCTOR,—I have now much pleasure in sending you as under my remarks on cases that came under my notice, of supposed Hydrophobia. I say supposed, as the animals that bit the parties were killed at the time, and I had no opportunities of proving whether the animals were affected with Hydrophobia or not. The first case I shall mention happened at Midnapore some time in September or October last year, when some 25 to 30 persons were bit by a jackal during the night; the first person was severely bitten over the face, and more especially about the lips, others on the arms and legs; and the person who succeeded in killing the animal, very severely on the wrist of the left arm; amongst these parties, only one case showed Hydrophobia, and the party was a woman who had been bitten over the arm and hip, the symptoms of Hydrophobia begun to show themselves about two months after the woman had been bitten. She first complained of a particular sensation in the neck or throat, and a creeping or prickly feeling over the arms. (Mrs. Mackenzie had applied to her's and the wounds of some of the others blue ointment, but not to the extent of producing salivation,) she that day took home some arrow-root given her by Mrs. M. to be taken some hours after a dose of castor oil, which she had in the morning, the arrow-root she succeeded in taking, but towards evening

her symptoms got worse and she found she could not swallow water, though she could take it into her mouth, when spasms of the throat would come on and she was forced to spit out the water again with a particular noise accompanying (something between a cough and a bark) the attempt to swallow; I made her repeat it but without success, the same spasms coming on and the same strange sounds accompanying the ejection of the water; from which time I did not see her again, though my servants were sent daily to see how she was and report upon her appearance, which they described as much emaciated with a wild and melancholy look; her ravings were more like mutterings than frenzy. Her children were taken from her on the second day, from which time until her death, which took place upon the 3rd or 4th day, she remained lying upon the floor of her hut refusing both food and water, no precautions were taken by the police (under whose surveillance I had her placed), more than keeping the door of the hut shut from the ground to half way up.

I may add, however, for your better information on this case, that the neighbours had more or less frightened her as to the consequences, and this might have had something to do with the fatal result. The Jackal that bit this woman and others I saw after he had been killed, his appearance showed much emaciation and there was a quantity of saliva sticking to his tongue and about the mouth.

The other case happened about the same time, three men were bit by a jackal, which one of them caught and made over to my servants to kill; this jackal was not in the least emaciated and had no appearance of saliva about the mouth or tongue, the man who died I did not see after the symptoms of Hydrophobia came on, though my servants who went and saw him daily described the symptoms as much the same as in the previous case; after his death, however, to allay the feeling of dread amongst those who had been bitten, or for some other cause, his relations pretended to say he had died of cholera;—he was ill for about 3 or 4 days.

“I shall now bring to your notice two cases, where parties who had been bitten by a mad dog were treated by me, the dog I kept until such time as the disease carried him off, which was in 3 or 4 days; his symptoms were hydrophobia in the worst shape, snapping and biting at every thing, eating his own evacuations, also wool from a pad that was lying near him, and which he had torn to pieces, his food also in the same way was hurriedly eaten up, and along with the other things again ejected, to be again eaten; water which was given to him he did not seem to be afraid of but would boldly dash his head into it, when convulsions would come on and he would roll about as if in the last agony, his bark and howlings too were that of a

dog with hydrophobia, and which if once heard could not easily be mistaken.

The dog was a favourite bull terrier of my own, and allowed to go about loose, he had for one or two days in July or August, 1831, shown a snappish temper, and had attacked one or two pups that had formerly been his favourites, this I took little notice of at the time, but on taking him out with the other dogs one evening he attacked different of them, and when called, made a sudden spring at my hand against which one of his teeth struck and tore off the skin, though he missed his bite, it then struck me that he was mad, and I had him tied up with two chains instead of one, giving the Dooriah who had charge of him particular instructions to be careful to keep out of his reach, this the man neglected to do and the consequence was that he was severely bitten over the hands, face, and chest, which I did not hear of till next morning,—my own wound I immediately kept sucking until I reached the house, when I had my mouth washed with brandy, and after with Spirits of Ammonia, applying the same to the wound, as also caustic commencing at the same time with blue pills morning and evening, as also rubbing in blue ointment over the two groins, this I continued until such time as I brought on salivation; the caustic as well as blue pills and ointment I also applied to the Dooriah, until salivation was brought on, which was easily and soon done by giving opium along with the large quantities of mercury thrown into the system; the Dooriah was for some years after in my employment, and when I last heard of him, about 3 years ago, he was quite well, and I, myself, have felt no bad effects from my wound, though for one or two years after I must allow, I was far from comfortable about it.”

I have seen many dogs with hydrophobia in this country and elsewhere, and many affected as the dog mentioned was, but none worse.

It has often struck me from what I have seen and my own experience amongst dogs, (when I kept a great number,) that many of them are supposed to be mad when in fact they are only suffering from inflammation of the brain or bowels.

Many dogs on losing their masters run about, and in time, from hunger and usage, get snappish, and are supposed to be rabid, and this accounts for so many people getting over what they consider the bites of mad dogs without taking any great preventive cautions.

I remain,

Your's sincerely,

H. MACKENZIE.

P. S. I may add that Midnapore station is a very bad place for Hydrophobia, amongst both dogs and jackals; the natives of the place account for it in this way, that owing to the numerous deaths amongst the pilgrims on their way to Juggernaut, who are merely covered over with the sand of the river, and their corpses being easily disinterred by both animals, are devoured by them; those that eat the gall-bladder, are supposed to go mad and communicate the disease to others.

H. M.

PAPER III.

III.—Six cases of Urinary Calculi removed by the lateral operation. By P. F. H. Baddeley, Esq., Assistant Surgeon Shah Sooja's Force, while in Kandahar.

IV.—Three successful cases of Lithotomy operated upon by Ramnarain Doss, Sub-Assistant Surgeon, with the specimens forwarded by the Medical Board, were also submitted to the society.

This occasioned some discussion as to the revival of the old controversy respecting the extent to which the prostate should be divided in this operation.

MAY 6, 1843.

Some statements respecting the funds of the Society were submitted by the Secretary, this led to a discussion respecting the circulation of periodicals. It was finally proposed by Mr. Gordon and seconded by R. Wood, Esq.

“That Messrs. Stewart, Jackson, and Goodeve, with the Vice-President and Secretary, be appointed a Committee to enquire into, and report upon, the state and prospects of the funds, with reference to the experience of the Society since its first establishment, and to suggest such measures as they may consider likely to promote the usefulness and prosperity of the institution.”

The following papers were then read and discussed.

PAPER I.

Hydrocele treated with an injection of Ozymuriate of Mercury, by W. Raleigh, Esq.

This paper presented by Dr. Mouat, begins with some careful criticism regarding the effects of Iodine as an injection in this disease.

Mr. Raleigh then observes, with reference to his mode of treatment, “that in an equal number of cases, it has proved even more efficacious than

Iodine, and it has the advantage of being a more clean application, and one which does not destroy the syringes which are commonly used in this country (Pewter) as Iodine does, besides which, it is more generally obtainable than Iodine. In its effects, it is at the time of introduction, more mild than the Iodine injections, occasioning less pain to the patient, whilst subsequently it produces just sufficient inflammation to eradicate the disease, and in 220 cases in which it has been used at the Native Hospital during the past year, not one instance of failure, in a reproduction of the fluid has been ascertained, whereas, out of an equal number of cases treated with Iodine, a few instances of return of the complaint have been known to have occurred, by the patients again applying for relief. I have no intention, however, of pronouncing the remedy infallible; but, from the success which has attended its use thus far, I consider it preferable to Iodine, the employment of which it has superceded at the Native Hospital, and Dr. R. Stuart, Assistant Surgeon of the institution, coincides with me in the opinion, of its being fully as efficacious, more mild in its action, and for the other reasons alluded to, preferable to Iodine.

The preparation employed is composed of one grain of oxymuriate of Mercury, dissolved in one drachm of spirits of wine, to which is added seven drachms of water, and of this mixture, a small syringe full (about three drachms) is injected and is allowed to remain, the canula being withdrawn on the introduction of the solution.

PAPER II.

Removal of half the Lower Jaw, by J. Jackson, Esq., M. B. Cantab.

This bold operation, attended, however, with most complete success, was rendered necessary, for the removal of malignant disease in a native. It is another of those modern surgical triumphs, equally honourable to science and humanity.

The history of the case is carefully drawn up, but is here omitted, and the operation and its effects alone reported.

A preparation of the parts removed, was shown to the meeting, in illustration of the case.

"On the first examination, the man was informed, that there was no prospect of benefit excepting from the removal of the tumor, and probably half the jaw. After going the round of several medical men, the man again presented himself, and expressed his willingness to submit to the operation."

Operation.

He was, therefore, placed upon the table towards the light, his head well raised and supported on a pillow. An elliptical incision was made over the

tumor commencing from the angle of the jaw. The incision was sufficiently large to expose the tumor very distinctly. The space it seemed to occupy was between the angle of the jaw and the bicuspid tooth on the right side. The bone at both places appeared healthy, the disease occupying the whole of the intervening portion, and so implicating the bone as to destroy all hopes of saving it, by the removal of the tumor; by a probe introduced, the lamina of bone were felt, and the layers of the two plates of the bone considerably separated.

The bicuspid tooth was extracted, and the jaw sawn nearly through with one of Hey's thin saws. The incision was then completed by Liston's bone nippers without any difficulty. The bone appeared at this point perfectly healthy. The edges of the wound towards the angle of the jaw were then held apart on either side, and the bone sawn through without any trouble, and the intervening portion containing the tumor was carefully removed. The operation did not occupy much time.

On sawing through the angle of the jaw, the ease with which the saw passed through the bony plate, led me to fear, that the bone was diseased. On removal of the excised portion it was found spongy and soft, and on introducing the finger into the wound, the layers of the ramus of the jaw were found widely separated, and the internal portion diseased, the tumour or diseased part extending in fact up into the ramus. The only thing left, was to remove therefore, the ramus at its articulation. A vertical incision was then made, the attachment of the muscle to the coronoid process carefully cut through, the bone was then pulled forward and downward, and the ligament of the joint divided with a scalpel, and the ramus with the articulation removed. This latter part of the operation took rather longer time than the removal of the tumor, and the sawing twice through the bone. A branch of the internal maxillary was divided, and the facial artery, at the commencement of the operation. These required ligatures.

The man bore the operation remarkably well. He did not lose much blood; but the shock produced the painful effect of keeping his pulse very low, and for the first day or so, I was apprehensive he would not recover. After the operation, sutures were applied and the part kept bathed constantly with iced water. On the 3rd day the sutures were removed and adhesive straps made use of. Union had already begun to take place. The patient's strength improved, and on the 3rd week after the operation he was discharged well.

There was a very little falling in of the cheek. The mucous membrane was perfect, along the whole course of the internal incision, and the end of the bone well covered. The man had the perfect motion of the remaining

part of the jaw for masticating purposes. His speech unaffected, and his general health complete. On disarticulating the bone, it was well shown, how little probability there would have been of eventual recovery had the union of the jaw been allowed to remain. (The disease appears originally to have taken place in the interior of the bone near the angle, and by its increasing size to have separated the layers, and at last to have reduced them to the thinness of an egg-shell.) The parts have been preserved and sent to the museum of the Medical College.

PAPER III.

*Report of a Case of Cæsarian Operation, after fatal Laceration of the Brain,
by Allan Webb, Esq.*

"I was called on Saturday evening, the ——— to visit a poor woman in Barracks, belonging to the ——— Regiment.

I found her pale and perfectly insensible, complete dissolution of the limbs. Pupils, especially that of the right eye, widely *dilated*, a puffing whistling respiration, skin cold; and a very feeble irregular pulse. She was a fine looking European woman far advanced in pregnancy. A puffy tumor, about the size of half an orange, was observed at the back of the head.

On enquiry, I found, there had been a quarrel between herself and husband. She attempted to strike him, he, to defend himself, raised his arm, which caught her, and she fell backwards, her head (with this additional impetus added to her advanced pregnancy), dashing against the stone floor. This happened at two o'clock, and she was then insensible, but soon recovered and was sitting up and talking with the women at four.

Seven o'clock, I saw her with the surgeon in charge of the — Regiment, to whom I stated my conviction, that effusion of blood was rapidly taking place. We consulted upon the question of trephining immediately, but decided against it; concluding, that the extravasation of blood would be found on the opposite side of the skull to that of the fracture—that the fracture might be through the base of the skull, opposite the external bruise, but the effusion would be from the contre-coup either tearing away the dura mater and brain from the frontal bone, or lacerating the substance of the brain itself. This was deduced from the state of the pupils, the pulse, breathing and muscular power. We then resolved, that an attempt should be made to save the child upon the death of the parent, (which we looked upon as inevitable) by performing the cæsarian section.

About 10 o'clock, it was reported, that the poor woman was dead, we immediately repaired to the place."

Mr. Webb then described the operation, and the means used, though ineffectually, to re-animate the infant.

The following were the appearances observed in *the head* :—

“ *The head*.—This was carefully opened, and the saw carried low anteriorly, beneath the orbital plates.

No fracture was found immediately upon the salient part of the occipital bone opposed to the bruise, and very slight extravasation of blood in the pericranium, none at all, elsewhere. On removing the calvarium, and the orbital plates, with the brain and dura mater attached, the fracture was seen, running through that lower hollow of the occipital bone, which receives the cerebellum, towards the foramen magnum, where it terminated. No effusion of blood, whatever, had here taken place. On removing *the right orbital plate, however, extensive extravasation of blood was found in this situation, underneath the dura mater*, blood also effused in the sulci between the convolution. A less degree of it over the left orbital plate, and in the sulci between the pia mater and the arachnoid.

The brain exceedingly softened throughout both of the anterior lobes ; and an extensive laceration of the substance of the anterior lobe, running right back to the lateral ventricle of the right side. The back part of the brain, and cerebellum, were firm and healthy ; ulcerative action was apparent in the pia mater, in the sulcus between the anterior and middle lobes.

I found on enquiry, that she had suffered greatly from head-aches for some time before death ; and was dreadfully irritable.

It was a great satisfaction in this case, to be able, through the great care observed in removing the parts, to demonstrate this softening as well as laceration of the brain. By cutting slightly, first the anterior, and then the posterior surface of the brain, and, then pressing with the finger, alternately upon each, this became abundantly evident. Upon this fact alone, the man escaped being committed to trial.

The next remark is only repeating that of M. Taulpouche—“ It proves the independent contractility of the uterus since this took place after death, with as much energy, almost as could have occurred during life.”—See *Encyclographic des Sciences Médicales*, August, 1842.

PAPER IV.

A Report on Delirium Tremens, drawn up in conformity to Circular No. 12,378, from the Army Medical Department, dated 9th March, 1841, by J. Mouat, M. D., Surgeon, Her M.'s 15th Hussars.

This able and elaborate report by Dr. Mouat, of the disease as observed in H. M. 13th Lt. Dragoons, and the 15th Hussars, with the treatment

accurately reported in statistical tables, could be only very imperfectly condensed here.

The result may be gathered best, from Dr. Mouat's table Nos. 7 and 8.

No. 7.

No. 7.

The greatest period in hospital was 23 days.

Average ditto ditto 12 ditto.

The greatest quantity of blood drawn was 50 ounces.

Average ditto ditto 13½ ditto.

Greatest number of leeches applied was 152.

Average ditto ditto ditto 22

Greatest quantity of calomel taken was 2 drachms 10 grains.

Average ditto ditto 50 grains.

No. 8.

Abstract Summary of the remedies of 35 cases treated.

21 had cold effusion, that is cold water poured over the head in a stream, or cold applications to head.

6 had warm baths.

9 had blisters behind the neck.

17 had emetics, with emetic treatment.

35 had purgatives during the progress of the disease, the bowels being kept open by active purgatives.

22 had opium.

9 had tincture of opium.

4 had acetate or morphine.

2 had tincture of hyosciamus.

10 had camphor, with opium, nitre, or hyosciamus.

22 had mistura camphoræ.

3 had carbonate of ammonia.

16 had aqua ammoniæ acetatis.

21 had solutio antimonii tartarizata.

9 had antimonii tartarizata.

16 had pulvis antimonialis.

8 had pulvis doveri.

3 had potassæ nitras.

JUNE 3, 1843.

The Secretary, referred to the Meeting, the propriety, provided he had the authority to do so, of informing the members of the Society lately on service, in the Afghanistan and China Expeditions, that the last vol. of

the Transactions (vol. viii.) would be forwarded to any address they might give.

It was resolved, therefore, that circulars should be sent to the following gentlemen :—

List of Members in the Affghanistun and China Services, who have not received the " Transactions," 1842.

AFFGHANISTAN SERVICE.

- No. 1 Daryl Wm., Esq., Surgeon.
- „ 2 Davidson, A., M. D. do.
- „ 3 Diaper, H., Esq., do.
- „ 4 Faithful, R. W., Esq., Asst. Surgeon.
- „ 5 Gordon, A. C., Esq., do.
- „ 6 Jameison, William, Esq., do.
- „ 7 Hart, H., Esq., Surgeon.
- „ 8 Carew, E. R., Esq., Asst. Surgeon.
- „ 9 Lovell, M., Esq., do.
- „ 10 Reid, A., M. D., do.
- „ 11 Rolfe, A. N., Esq., do.
- „ 12 Metcalf, T. R., Esq., do.
- „ 13 Thomson, T., Esq., do.
- „ 14 Wilson, Esq., do.
- „ 15 White, A., Esq., do.

CHINA SERVICE.

- No. 1 Comon, J. R., Esq., Asst. Surgeon.
- „ 2 Crozier, A. W., Esq., do.
- „ 3 Cox, C. L., Esq., do.
- „ 4 Thompson, J., Esq., Surgeon.
- „ 5 Hutchinson, T. C., Esq., Asst. Surgeon.
- „ 6 Oxley, Thomas, Esq., do.
- „ 7 Montgomerie, W., Esq., Sr. Surgeon.

A letter from Mr. Watson, Superintending Surgeon of Benares ; proposing Mr. J. R. Tayler, Surgeon H. M. 29th Regiment, as a member was then read.

A letter from Mr. Thomason, Secretary to the Government of India with the Governor-General, transmitting a " Medical Report in the Kingdom of Shoa," drawn up by R. Kirk, Esq., Bombay Medical Service.

PAPER I.—*Reports.*

1st. *Meeting of the Committee* to enquire into the affairs of the Medical and Physical Society of Calcutta, assembled at the Eye Infirmary, the 20th May, 1843.

Present.—C. C. Egerton, Esq., Vice President; G. J. Gordon, Esq.; D. Stewart, M. D.; H. H. Goodeve, M. D.; J. Jackson, M. B., and Allan Webb, Esq., Secretary.

It was Resolved that the following queries should be filled up by the Secretary, and circulated for the information of the Committee :—

Query 1st. At what period was the Society's largest income?

Answer.—In 1833, viz. Rs. 8,232.

Query 2nd. What the largest number of subscribers at that time?

Answer.—1833, 319 subscribers.

Query 3rd. Amount of the largest realizations?

Answer.—In 1836, viz. Rs. 5,185, dropped one-half next year, i. e. 1837, to 2,989.

Query 4th. Causes to which the present diminution of income is to be attributed?

Answer.—These may be comprehended under five different heads, viz. :—

1st. Subscriptions are now reduced one-half in amount from Rs. 48 to 24 per annum, for members resident;—and from 24 to 12 for others. All *Admission fees being abolished.*

2nd. Is the cost of supplying Medical Publications and Journals to the Members *free of expense.*

These quarterly and weekly Journals supplied, appear to have cost the Society full one-half its income, taking it at Rs. 2,000, (see Messrs. Thacker's two bills, Rs. 1,039, Messrs. Allen's bill £68.)

3rd. Heavy Postage, Rs. 360 per annum, *formerly, free.*

4th. The Societies since established at Bombay and Madras, must have taken away many members.

5th. The long time the transactions were in abeyance made last year's publications more than usually extensive, viz. Rs. 1,806, (see Mr. Rushton's bill.)

Lastly, the sort of enthusiasm which any thing new excites in India has now subsided :—and our Society must depend for support, on its own well established and manifest utility.

Query 5th. Present assets of the Society, or what are our present funds..... 3,014

Query 6th. The annual subscriptions or actual amount of receipts this year realized..... 1,394

Query 7th. Present liabilities 2,200

Query 8th. Present rate of current expenditure 220

About Rs. 200 or 220 per month, for Journals 130
(Postage Rs. 30, salary 46, sundries 14.)

(Signed) ALLAN WEBB, Secy.

Report of the 2nd Meeting of the Committee of the Medical Society at the house of C. C. Egerton, Esq.,—June 1st, 1843, to enquire into the state of the Society's funds, and to report on the information afforded by the Secretary, in his replies to the several queries proposed at the former meeting, on the 20th of May.

The Committee composed of Messrs. C. C. Egerton, G. J. Gordon, J. Stewart, having carefully gone over the several inquiries instituted on the 20th of May, and the replies now given by the Secretary, with reference to the state of the Funds, and also the several minutes upon the subject, beg to suggest the following recommendations to the Members of the Society:—

1. The Funds of the Society not permitting us to forward five Medical Periodical to the 12th Divisions of the Army, as well as to publish our transactions, they propose, that in lieu of these five Medical Periodicals, one monthly copy of the London Medical Gazette on the arrival of each Overland, shall be forwarded, to every Superintending Surgeon, for distribution within his division.

2ndly. That all the original papers now in hand, be collected, and after submission to the Committee of Papers, be published.

3rdly. That the Members be called upon to pay off their subscriptions, (and with a view of realizing the subscriptions, an allowance not exceeding 10 per cent. be given to a collector.)

4thly. That every Assistant Surgeon, on his arrival, be then considered to be, and also for the next six months, a Member of the Medical Society, and be entitled to the advantages of all other members, such as the use of the library, attendance at the monthly meeting, &c.

That this be notified to them on their arrival in the country.

5thly. That these Resolutions be printed and circulated to our members.

6thly. That they, especially the Mofussil subscribers, be earnestly solicited to come forward with professional contributions, the Committee of Papers pledging themselves to secure the most ample care for their early and correct publication.

7thly. That a draft of a letter to this effect be drawn up by the Secretary and submitted to the Committee, previous to circulation.

(Signed) ALLAN WEBB, Secy.

PAPER II.

Medical Report on the Kingdom of Shoa, (transmitted to the Society by order of the Governor-General.) By R. KIRK, Esq., Assistant-Surgeon, Bombay.

This very able Report is of too voluminous a nature for the usual limits of our monthly record.

It begins by a geographical description of the "Kingdom of Shoa, included between the parallels of $8^{\circ} 30'$, and $10^{\circ} 30'$ north latitude, meridians of 38° and $40^{\circ} 20'$ east longitude; this is divided for the purpose of medical topography into two districts, differing widely in elevation, in climate, and in productions, and consequently, each marked by peculiarities of pathological character."

The approach, aspect, geological feature, climate and meteorology of the country, its seasons, and vegetation are set forth, with thermometrical table and registers.

The conformation, appearances, religion, temper, characters, habits, and employments of the people, with details as to food, dress, arms and ornaments.

It appears that they hold the profession of medicine in some degree of respect, but have no great love for that of surgery. Mr. Kirk says, that "the Abyssinians appear to place implicit faith in the efficacy of European medicine, more particularly when accompanied with rigid directions regarding diet, and the exact period for which it is to be maintained, all advice in this particular being strictly followed, and the medicines taken with tolerable regularity. On occasions when the Nagoos himself has been the sufferer, the remedy was, however, always previously tried on one of his own subjects, and on a favourable report being made, the Royal patient himself commenced its use."

"Though placing full confidence in medicine, the Shoas on all occasions, shewed the greatest dread and dislike to all surgical operations, &c."

The diseases prevalent there—the native methods of treatment, which bear a strong analogy with those in use in the lower range of the Himalayan mountains, are fully investigated.

A list of the medicinal plants of the country, with the systematic names, as well as the vernacular, is also given.

At the close of this full and interesting Report, which was highly commended by the President, Mr. Egerton—

It was Resolved, that a letter be addressed to Mr. Thomason, stating that the Society would most gladly avail itself of the permission of the Governor General, and publish in their transactions, the Report now before them.

PAPER III.

Two cases of Displacement of the Heart, by Allan Webb, Esq.

Mr. Webb introduced this, by observing that in the last, or January Number of the "*Journal de Médecine de Bourdeaux*," a very interesting case was recorded of displacement of the heart, by M. Gintrac. In this case,

owing to atrophy of one lung, the other had so greatly increased, as to press aside the mediastinum, and press the heart also completely to the right side. A case by Abercromby, others rather doubtful by Boerhaave, one by Pleniz (reduced from the *Acta et observata Medica Præ et Viennæ*) are also referred to, attested by post mortem inspections.

Of the two cases, now presented, one occurred ten years ago, the other last year. One is illustrated by rough sketches, the size of life, the other by the preparation itself.

In the first case, the displacement took place, as a consequence of an enormous aneurism of the abdominal aorta, (the largest perhaps upon record,) which had burst into the chest, and filled the left side.

In the 2d case a vomica had burst, immense inflammation and effusion succeeded, completely flattening the lung, and pressing the heart to the right side, where it was distinctly perceived to pulsate long before the death of the patient.

The cases were then read, and commented upon by Messrs. Egerton and Jackson—when the meeting broke up owing to the lateness of the hour.

AUGUST 5, 1843.

It was reported by the Secretary, (agreeably to the resolution passed at the last Meeting,) that letters had been despatched to such members as were employed in the Afghanistan and China Expeditions, apprizing them, that Vol. viii. of the Transactions would be transmitted to any address they might give.

The Proceedings of the last Meeting were then read and confirmed.

The Secretary then laid before the Meeting, an account of arrears due to the Society. This he considered imperfect, inasmuch as many Members, still nominally returned upon the roll, had never been apprized of such arrears, and were perhaps altogether ignorant of being now considered Members at all. Several communications had been received by him from Members in the Bengal Presidency who had considered themselves no longer subscribers, having received no accounts, nor transactions, for years past.

The gross sum of arrears rendered by the accountant is—Rs. 11,180.

THE PAPERS FOR DISCUSSION.

I.—*On the diseases which incapacitate the Sepoy from duty.* By C. Finch, M. D., Presidency Surgeon.

II.—*Curious case, of a large calculus removed from the prostate.* By J. McPherson, M. D.

III.—*Case of Dysentery with separation of the mucous surface, &c.* By G. Eveleigh, M. D.

IV—A case entitled *Tumor in the Antrum—removal of the Superior Maxillary Bone*, was presented by Dr. Jackson from W. Raleigh, Esq. but had been already published in Dr. Eveleigh's Journal. It was accompanied by a clever drawing by Mr. Daly.

The very useful practical and interesting paper by Dr. Finch, on the Diseases of the Native Soldier, supplying as it does, a long-neglected subject, in the statistics of our army, has too important a bearing upon the efficiency of that Army, and also upon medical science in general, to be abridged within the usual limits of our monthly report.

It embodies the long experience of its author, as to the effect of climate, caste, food and clothing upon the physical condition of the Sepoy, whether on service in the field or in the quiet of an ordinary station. His native clime or the Upper Provinces of India, is contrasted with Bengal and Arracan. It embraces also, important conclusions, as to the constitution of invaliding committees, and the causes for which sepoys are invalided. It is doubly valuable, on the one hand, from the complete familiarity which the author's long experience lends to the subject, and on the other from the novelty of the subject itself.

In prosecution of his enquiry and in order to ascertain the relative frequency of those diseases which incapacitate the Sepoy for Military duty, Dr. Finch submitted to examination, the Invaliding Rolls of three Regiments, the 31st, 40th, and 57th N. I., for a period of nine years; from 1834 to 1842. From these rolls Dr. Finch has compiled separate tables, of the number invalided of each regiment, and the causes of disqualification. He has collected from these separate tables, the number incapacitated for military duty and their various disabilities, from which he has compiled a general table.

This will be better understood by the following extracts:—

"68. By a reference to the general table exhibiting the numbers invalided of the three regiments we obtain the following results.

"69. That in the years from 1834 to 1842 in the 31st, 40th and 57th regiments N. I., there were invalided for susceptibility to Fever 5;—for General Debility, a frequent consequence of Fever, 24;—Enlargement of the Spleen dependant on Ague, 3;—or total 32.

"70. That during the same period, there were transferred from these regiments for Rheumatism, and contractions of the joints, a common consequence of Rheumatic Disease, no fewer than 68.

"71. That there have been removed from the ranks of these corps, inea-

pacitated by Asthma, not fewer than 28; from Dyspnœa not less than 6—and from Phthisis, from pulmonic disease altogethei 35.

"72. Disqualified by diseases of the Eye, Cataract, Ophthalmia and Amaurosis 14.

"73 From diseases of the Brain, Apoplexy, Mania, Paralysis, and Epilepsy, there have been invalided 13

"74. There have been rendered non-effective by Bowel Complaints in the above period and Corps by Diarrhœa, 3;—by Dysentery 5.—Total 8.

"75. Diseases affecting the whole system have occasioned the transfer of 9 men from the effective to the non-effective establishment.

"76 Eight have been removed from disabilities affecting the bones;—three from fractures, and a similar number from loss of teeth —Exostosis 1, and Periostitis 1

"77. Incapacitated by diseases of the extremities there have been 13,—five by wounds, of which 2 were received on service,—by Ulcers 1, and by burning in the feet 6

"78. That in the period under review there have been pensioned from Cutaneous Affections 3

"79 The other causes of disqualification, either accidental or anomalous, such as Herma, Hemorrhoids, &c, have occasioned the transfer of 25.

"80. During the nine years selected, 54 men have been removed from the ranks of these regiments incapacitated by general infirmity or from having become totally unfit for military duty of any kind.

"81. Disqualified for further service,—

By Fever and its consequence	32
By Rheumatism, &c. do.....	68
By Diseases of the Chest	35
By Diseases of the Eye	14
By Diseases of the Brain	13
By Bowel Complaints	8
By Diseases of the System	9
By Diseases of the Bones.....	8
By Diseases of the Extremities.....	13
By Cutaneous Affections	3
By all other Diseases	25
Worn out.....	54

"82. That there have been transferred from the effective to the non-effective establishment in the course of nine years from three regiments of the line, incapacitated by disease, age or infirmity, not fewer than 262.

Among the most striking results from Dr. Finch's paper, is the rarity of phthisis in the native army, and the exemption of the sepoy from hepatic or liver affections, of these three regiments whose rolls have been submitted to revision, there is only one solitary instance of consumption, and that in the 31st N. I.

There does not appear to have been one man in the course of nine years in these three regiments invalided for hepatic disease. The infrequency of Liver complaints among the indigenous race of this country has been recorded by the late Dr. Twining in his book on the Diseases of Bengal.

It was suggested by Dr. Jackson that the difficulty of obtaining *post mortem* investigations, and the consequent rarity of such examination in the native corps, might account for this strange immunity from phthisis apparent in the reports. The disease might be there, but not palpably recorded.

To this Dr. Finch replied that he had never found difficulty in examining the cases that terminated fatally;—and rarely neglected to do so, but had not met with it excepting in the Upper Provinces.

The Secretary (Mr. Webb) observed, in confirmation of Dr. Finch's deduction, that during nearly seven years in which he had had charge of the Native Hospital of Reserve Guards in the Fort—although every case in which the respiratory organs were implicated had been carefully examined with the stethoscope, he had never yet found a case of excavation from tubercular phthisis among the sepoys—yet the guards were constituted of men from several different regiments, and changed every month; neither had he observed any other form of tubercular disease among them.

During the same period he had watched the progress of this fearful malady in many European soldiers—and traced its ravages after death. But the sepoy's most serious disease of the air passages was chronic bronchitis—with abundant expectoration of muco-purulent sputa amounting sometimes to a pint or two in twenty-four hours. In young children, especially East Indian—he had repeatedly treated the same disease chiefly in the Hospitals of the Lower Orphan School—but even there he had never met with a single case of tubercular disease in any form—among 300 children.

II.—The very interesting paper of Dr. McPherson was then read and commented upon.

That a calculus of such a size equal to that of an ordinary nutmeg, should have so long remained in such a situation, without ulcerating its way out, is very remarkable, it is explained however by Dr. McPherson's remark that the "mucous membrane was white and tough, and had undergone the so-called *cartilaginous transformation* of Andral." The stone was readily removed by incision.

III.—The next paper was a case of disease of the intestine by Dr. Eveleigh, embracing some curious pathological effects, the throwing off as exuviae the Epithelium of the mucous-membrane of the cæcum was then read, and commented upon by Dr. Jackson.

SEPTEMBER 2, 1843.

Read a letter from Dr. King stating his intention of leaving India, and therefore withdrawing his name from the Society. •

With reference to the collection of arrears, it was proposed by Mr. Egerton, seconded by Mr. Gordon, and carried unanimously, that the accounts sent in of arrears due should not go back beyond three years.

It was proposed by the Secretary, and seconded by Dr. Finch, that Mr. Bouchez take charge of the collection—this also was carried *nem. con.* •

Papers Read.

The continuation of Dr. Finch's able paper "on Invaliding in the Native Army" was then resumed. "*The diseases simulated by the native soldiery*" being the division, which was now brought before the notice of the society.

It is abundantly evident that no ordinary tact and discernment is required even in the Medical Officer, to enable him to guard against the artful tricks which men resort to in their "*Inglis ka kuwaeed*," or practising for the invalids, as they themselves term these attempts at imposition, and it is no less clear, that the non-professional members of invaliding committees, would be utterly incapable of detecting them. •

Of this species of drilling Dr. Finch has given an admirable sketch.

Dr. Finch then proceeds to consider separately each disease beginning in the order of frequency with respect to simulation; he very shrewdly remarks the extraordinary tendency to periodicity observed in all of them, with reference to asthma. •

Dr. Finch not only points out the extraordinary tendency which the feigned disease has to begin about the fifteenth year, but the marvellous manner in which it becomes cured after the sepoy's admission to the invalid establishment.

The Secretary remarked upon the extreme rarity of dry asthma in this country, which indeed he had never met with in Europeans. The copious secretion of mucus from the air passages formed therefore in them, a test that could not be simulated; nor could the peculiar sound, which the stethoscope detects, the *râle siccâ*. He (Mr. Webb) had observed for many years, at the Annual Invaliding Committee in Fort William, that among the many

old soldiers of H. M. Service invalidated for this disease, that this sign was rarely or never absent.

On the manner in which *Epilepsy* is simulated, Dr. Finch's observations are no less valuable.

Besides the suspicion attached to attacks coming, and for the first time, in the 13th or 14th year of a man's service.

Another common case for invaliding is Rheumatism. Dr. Finch adds that non-cavalry corps is become so favorite a form of simulation with the men as to be called the "cavalry manoeuvre."

Dr. Finch's *Lumbago* test is very good, and his success in detecting deafness highly satisfactory.

Blindness, or feigned Amaurosis, is occasionally very difficult of detection. Besides the practical remarks of Dr. Finch some excellent observations were added by Mr. Egerton on this form of disease or imperfect vision.

Dr. Finch's valuable paper closed by stating the strength of the regiments during the period under review.

NOVEMBER 4, 1843.

The Secretary then read a letter from Dr. Mouat requesting some spare copies of the "Taleef Shurreef," by Dr. Playfair;—for the use of the College Students. On this being put, as a distinct motion, and seconded by Dr. Stewart, it was carried unanimously, that the books should be given to the Medical College.

Mr. Egerton remarked, that in seconding the proposition of Dr. Mouat, to admit another of the Ceylon Students as a corresponding Member of the Society, and also in submitting the proposition for supplying the College with the short, and well arranged manual by Dr. Playfair, on the Indigenous Materia Medica of India, he was only following out the grand object of the Society, the advancement of Medical Science. And although many of the members might not be so well aware of the claims which these students possessed to such distinction, he trusted that these young men would justify the expectations formed of them by their zealous contributions to the Society's publication, from a country abounding in new and interesting objects for medical investigations.

The following papers were then read and discussed:—

1. *Case of Permanent Black Discoloration of the Skin from the effects of Cinnabar*, by J. McPherson, M. D.

Howrah Native Hospital, August 20, 1843.

"A Hindoo fisherman aged 44, presented himself. His skin was of a grayish black colour, having a dry feeling, and a corrugated appearance, and

devoid of all glossiness. The colour of the palms of his hands and the soles of his feet, was black; and scarcely a shade lighter than the rest of his body, the nails were not proportionately discoloured, although darker than natural. He attributes this discoloration of his skin to the use of cinnabar, of which he took two doses internally, and the fumes of which he inhaled on three occasions, about a year ago. The immediate result was profuse salivation, and complete disquamation of the cuticle, which was succeeded by a gradual change in the colour of his skin. Before the use of the cinnabar, he states that his complexion was by no means unusually dark."

At the conclusion of the paper, Dr. McPherson observes that "Harrold and Rigby had both noticed blackening of the skin as having occurred to workmen in consequence of the use of mercury, subsequent to the employment of sulphur." "In these cases," says Pereira, "the sulphur, and the mercury were thrown out of the system by the skin, and immediately they were out of the sphere of the vital powers, they entered into union, and formed the black sulphuret of mercury, which was deposited in the integument in a pulverulent form."

"This blackening was evidently superficial and not persistent, as in the case now recorded, the hypothesis however may be adopted for want of a better one; only we must suppose the deposit of the sulphuret some how took place, *under* the cuticle, not *above* it."

In the discussion which followed upon Dr. McPherson's paper, Drs. Stewart and Finch seemed to think the occurrences very unusual—since in the cases wherein they had found it necessary to prescribe the mineral, no such effect followed. Dr. Stewart conceived it possible, that some other compound might have been substituted, as it was only broadly stated, by the patient as Cinnabar, bought in the bazaar.—Dr. Finch remarked, that *for all the facts* upon which the discoloration is supposed to depend, the statement of the patient is alone cited. He added, that the mode of inhaling the mineral, which is practised in India, whether for clearing the nostrils of the larvæ of insects, or for other purposes, is infinitely preferable to the clumsy inhalers used in Europe. All the apparatus required is a common Hookah. Upon the heated gool, is placed ten grains of Cinnabar, and this is smoked twice a day—if larvæ are to be dislodged, the fumes must be directed through the nostrils—if ulcerations of the throat are to be healed *this is not necessary*.

Dr. Finch then brought before the society "*two cases of circumscribed tumors which had formed upon the liver as sequela of fevers,*" which had given rise to considerable apprehension, of their dependence upon suppuration of the liver, although the most simple treatment had sufficed in both

cases to remove them, and to restore the patients to apparently good health.

Mr. Webb suggested the possibility of these being Hydatids, which like all other parasites seem to flourish most, in the decay or reduced vitality of the body on which they feed, instancing worms, &c. as sequelæ of fever.

Mr. Egerton remarked that the *apparent* restoration to health, was no proof of freedom from abscess—adducing several instances where the most extensive disorganization of this nature, was only made manifest, by some sudden exertion on the part of the sufferer, as leaping, striking, and such like.

Mr. Webb said, he knew of two such instances. One a soldier whilst playing at fives. In the other case, a sergeant's wife, whilst wringing out clothes, felt something give away, and vomitted up two or three pints of pus—with the immediate subsidence of a tumor in the right side, to which she had long been subject. Both recovered. The greatest danger was, in his opinion, when the abscesses were opened, whether spontaneously or instrumentally, before the matter had become encysted. In every case he had examined—in which a diffused abscess had been evacuated in this stage, death was the inevitable result. Nor could any other termination be expected to follow the admission of air, or foreign matter, into the disrupted tissues of the organ, as yet undefended by that process of adhesion (stuccoing of its walls) which is always found to have been effected by fibrinous effusion in an old abscess. In old abscesses also, there was time for the operation of that law of compensation, which is usually found to obtain in all double organs—by increase of volume with the increase of function. If the lung of one side, for instance, be incapacitated, the other does double duty—the same in the kidney, and the same occurs in the two lobes of the liver—to a greater or less extent. But if the whole organ be incapacitated as in cirrhosis,—then the whole body is disordered.

Any other view, would seem inconsistent with the latest discoveries regarding the physiology of this organ—for it is no longer regarded, as merely necessary for the secretion of bile to stimulate digestion. Professor Liebig having pointed out, that in the graminivora, the horse for instance, there are not so many ounces of bile to be found in the intestinal excretions as there are pounds secreted. Whilst in the carnivora, lions, tigers, and dogs—none whatever is found in the excrement. Even in the human fœtus—(before birth)—the liver is larger relatively, than at any subsequent period—yet were the office of the liver only to secrete bile for digestion this could not be.

It seems to be however proved, that this organ is hardly less necessary than the lungs for the renewal or, as the German Professor Schultz calls it, "rejuvenescence of the blood." He says,

"When the blood-vesicle has become incapable of being further acted on by oxygen gas, it is useless. The colouring matter must be renewed, and the residuum, or film be excreted or re-organized. According to Professor Schultz it is in the liver these changes take place. The absence of valves in the vena portæ, and the slow motion of the blood, are favorable to the precipitation of the old heavy useless vesicles from the general current of the circulation, and the more fluid plasma readily extracts the colouring matter of the flaccid films. On a chemical analysis of the portal blood, the plasma is found to be less in quantity, and more fluid, and containing more colouring matter than that of venous blood. This must necessarily be the fact, because the vesicles part with their colouring matter the more readily as they become less contractile. So that in the vena portæ two things take place; 1. The old useless vesicles are taken out of the circulation. 2. The debris, or dead films of these vesicles, are separated from the blood."

"If the old deeply-coloured vesicles are not excreted from the circulation as new ones form, the blood assumes a darker tint, and the portal system is congested, because the old vesicles accumulate in the liver. And as such vesicles cannot undergo the necessary changes in the lungs, and carry oxygen into the system, a necessity for increased respiration is excited, and asthma, and dyspnœa are developed.

"Since the vascular system has no direct emunctories through which the moulted debris may be thrown off, the circulation through the liver pours them out into the intestines as bile. The term vena portæ is prophetic, as that vein is a porta, a gate, in more than one sense."*

Out of a file of most interesting cases forwarded by the Medical Board the following were selected as bearing on the subject, and read,—

I. A case of acute hepatitis in a young recruit, by G. Craigie, M. D. Surgeon, 2nd European Regiment.

II. A case in which abscess formed during the late fatal fever at Kurlaul, by H. B. Bedborough, Esq., Assistant Surgeon, 1st European Light Infantry.

III. Another very interesting case, by Mr. Bedborough in which four small abscesses had formed in the liver during an attack of Dysentery.

IV. An instructive case, in which after dysentery had been subdued by appropriate treatment, suppuration occurred in the liver, and the whole right lobe formed one great abscess, by Dr. W. L. McGregor, Surgeon, 1st European Light Infantry.

V. Another enormous abscess of the liver which proved fatal by bursting into the peritoneum, by John Sutherland, Esq.

* The British and Foreign Medical Review, No. XXXI. July, 1842, (p. 214.)

The following cases of disease of the heart were also read to the meeting.

I. "*Enormous enlargement of the heart with effusion of fibrine and calcareous matter into the right ventricle,*" &c., by W. H. B. Ross, Esq., Assistant Surgeon.

II. An instructive case of endocarditis supervening upon fever—right auricle stuffed with organized fibrine, and distended to an enormous size: the whole organ enlarged. By J. Denham, Esq., Assistant Surgeon.

DECEMBER 2nd, 1843.

The Secretary then read a letter from Mr. Gordon, tendering his resignation.

Also a letter from Dr. Mouat, thanking the society for the handsome manner in which they had met his request with regard to the copies of the Taleef-Sureef which he had requested for the use of the College.

The following cases were then read and discussed:—

I. *Remarkable case of abscesses in the liver, one opened artificially, two spontaneously,* by J. Jackson, Esq. M. B.

II. *Another case of abscesses in the liver, complicated with abscess in the brain,* by J. Jackson, Esq. M. B.

III. *Case of abscess in the spleen, spontaneously evacuated—with recovery of the patient,* by Allan Webb, Esq.

IV. *Several interesting cases forwarded by the Medical Board.*

The cases of Dr. Jackson were very remarkable, with reference to the marked appearance observed after death, taken in connexion with the symptoms during life. Since in diseases of the brain and liver it is rare to find the locality of purulent collections so well indicated by symptoms.

Dr. Jackson observes that "both cases had taken place in Drunkards, and in the case of hepatic abscess which was opened, I had reason to believe that the man had been suffering much longer than he stated; I avoided venesection, being almost sure from the state of perspiration which the man had, that abscess had formed." It would appear that two of three abscesses had been fairly emptied during life, one artificially, the other naturally into the duodenum, the third merely required the separation of a portion of membrane, already sloughing, to have evacuated its contents into the stomach; for it seems probable that this had not taken place during life.

The next case of abscess in the brain and purality of abscesses in the liver is exceedingly interesting. The man left the hospital feeling quite well from the liver affection; the abscesses being encysted; but returned soon

after with well marked symptoms of inflammation in the brain, which was found to have terminated in abscess.

Dr. Egerton remarked upon this case that he had no doubt that such abscesses of the liver did frequently exist, and that for a long period, without declaring themselves by any well marked derangement of the general health; resembling in this respect other forms of encysted chronic abscess, as lumbar and psoas abscess. Mr. Egerton supported his opinion by that of other experienced Surgeons in India, and by specific instances.

Dr. Stewart objected to these inferences, and to some of the cases adduced by Mr. Egerton; supporting his opinion by cases he himself had observed, protesting at the same time, against any inference to be derived from the cases of Dr. Jackson, which should lead to the supposition that the exact locality of abscesses in the liver, or even their existence at all, could commonly be determined by any one symptom or set of symptoms; that which he had found, however, most to be depended upon was a dry, red, or brown state of the tongue.

The secretary replied, with regard to the remark which he had made upon the pain in the one case being first in the left shoulder only, when abscess was forming on the left side of the liver; then in the right shoulder only when abscess was forming on the right side; then across the Epigastrium, from right to left, when abscess was forming in the middle; he had distinctly stated the rarity of such a co-incidence, as being a point, in this case, worthy of observation.

Mr. Webb then read his case of abscess in the spleen. He observed, that it was well established that "collections of pus in the spleen are on the whole rare, and the symptoms of their formation obscure and unsatisfactory." Nevertheless, it would be in the recollection of the society that Dr. Jackson had presented a beautiful specimen of ruptured abscess, some few months back, which was now to be seen in the Museum of the College; to this specimen, so far as Mr. Webb recollected, no case was attached.

The students of the college had mentioned to him, two instances in two years, of abscess found accidentally in this organ among the bodies offered for dissection. But an abscess of such magnitude, spontaneously discharging itself, with recovery of the patient, he believed to be unknown in the annals of medicine.

Dr. Stewart in commenting upon the extreme rarity of such an extensive abscess in the spleen, and upon its happy termination, stated his conviction that the stage of inflammatory softening was frequently relieved by bloody vomiting, whether by ulceration, or by transudation through the capillaries of the stomach, he would not pretend to determine. But of one point, and

that of no trifling importance in practice, he felt confident; namely, that it was quite possible to detect the enlargement of this organ during the paroxysms of intermittent fever, and quite possible he believed, to prevent its structural lesions by the application of leeches at that very time.

Mr. Webb remarked that Andral, and others, had made the same observations of the enlargement of the spleen, to be observed during the paroxysm of fever, without however the practical application which Dr. Stewart had suggested, which appeared to him (Mr. W.) of much importance. With regard to the bloody vomiting by which the spleen was occasionally relieved, there was a case very much to the point recorded in a late if not the last number of the transactions of the Bombay Society. Considerable quantities of grumous matter, like the lees of port wine, had been vomited, the tumefaction of the spleen subsiding, with, he believed, the recovery of the patient.

The Secretary gave notice, that at the next meeting of the society, the election of officers for the ensuing year would take place.

JANUARY 6, 1844.

Members elected.

Read a letter to the president from M. LeProfesseur Gintrac of Bordeaux, forwarding copies of his works and expressing a wish to become corresponding member of the Society.

Proposed by Mr. Egerton seconded by Dr. Goodeve, that a letter be written by the Secretary, forwarding the Society's Transactions, and expressing the pleasure which the Society has, in enrolling the name of M. Gintrac, among its corresponding members.

Proposed by Dr. Mouat seconded by Mr. Egerton, that M. LeDocteur Chandru be thanked, for bringing M. Gintrac's valuable contribution to the library, viz.,

"Observations et recherches sur la cyanose, 2 vols.

"Fragments de médecine clinique, 2 vols.

"Revue des maladies observées à la clinique interne," 1 vol.

Mr. Bowhill, Assistant Surgeon in the Bengal Service, proposed at last Meeting, was duly elected a member.

The report of the last Meeting of the Society being read and approved—

The accounts of the Society for the past year with the several items of expenditure, were then laid before the meeting and passed.

It was proposed by Dr. Finch and seconded by Dr. Forsyth, and carried, "that in compliance with a resolution passed by the Society on the 3d of

June, and in consequence of little progress having been made in the collection of arrears, a circular be forwarded to each member of the Society, calling upon him for his unpaid subscription for the last three years."

It was proposed by Dr. Goodeve and seconded by Mr. Egerton, and carried unanimously, "that the Society meet only once in three months, or quarterly."

The Secretary then stated to the Society that he had received the "India Journal of Medical and Physical Science" for December, from the Editor;—and that he would beg to propose that the Society should take in this Journal for the ensuing year.

This was seconded by Dr. Goodeve and carried.

The election of officers then took place, Mr. Egerton having expressed an unwillingness to be again elected as vice-president;—since he hoped that the official situation of some of the members might enable them to benefit the Society more than he could. J. Forsyth, Esq., Presidency Surgeon, was unanimously elected Vice President, and Allan Webb, Esq., re-elected Secretary.

The following Gentlemen were elected members of the Committee of Management :—Messrs. Egerton, Finch, Moyat, and Huffnagle.

It was proposed by Dr. Goodeve and seconded by Mr. Egerton, and carried, that rule 11, be abrogated : and that in future, the Committee of Management perform the duties also of committees of finance and of regulation of papers.

• PAPERS READ.

I. *On occlusion of the biliary ducts in Cholera.*—By Dr. Finch, Presidency Surgeon.

II. *Case of abscess in the frontal sinuses.*—By Allan Webb, Esq., Garrison Assist. Surgeon.

Dr. Finch prefaced his paper by remarking that opinions, even if not entirely confirmed by universal experience, might yet afford matter of the highest interest for discussion ; and were therefore in no wise irrelevant to the objects of the present meeting. Such he conceived to be the opinion which Dr. McGregor had lately published, that " the essential cause of Cholera, is distention of the Gall Bladder by dark ropy-bile ; ' the ducts being most probably affected by spasm !' which he had adopted from numerous pathological examinations ;—and the co-incidence of this opinion with one which Dr. Finch had formed some years ago, from similar opportunities."

"Moreover, there exists in this part of the world, no other ordeal, to which opinions which require the stamp of further observation and experi-

ence, can be submitted to the profession, excepting the pages of the India Journal. "That the one now advanced, "is given to the world as leading to uniformly successful practice," gives it the more eminent claims to attention, from medical men, daily called upon to treat so fearful a disease as *cholera*. For "after having ravaged three quarters of the habitable globe, having spread dismay in the most populous capitals of civilized Europe, and raged in the thickly peopled cities of America ;—having given numerous opportunities to the most intelligent and inquiring minds of the old and new world, incited as they were by every stimulus of laudable ambition, to note its symptoms in the living, and scrutinise the changes it induced in the dead ;—having had its progress from the jungles of India, along the steppes of Russia, patiently traced ;—its transit from one country to another accurately chronicled ;—its tract across the Atlantic carefully marked ;—and its source everywhere anxiously sought, by men of all shades of opinion, until its return to the country of birth and adoption, yet—it has returned, with its nature as much hidden, its proximate or essential cause, as much a mystery, and its exciting and remote causes as little known, as when the disease first made its appearance in Lord Hasting's camp, in 1817."

"This incontrovertible truth, is not calculated to hold out to us (says Dr. Finch) any encouraging hopes of our ever being able to ascertain what is the real nature of this disease. But, on the contrary, the failure of the united powers of mind, of universal Europe and America, in detecting what constitutes the essential cause of Cholera, gives us but too much reason to despair ; and yet if any light is to be thrown upon this hidden subject, it is but just to conclude that it will be in this country."

From an extract of a letter addressed by Dr. Finch to Superintending Surgeon Playfair, it is manifest, that this morbid phenomenon had been recorded in 1834 by Dr. Finch ; and made in some measure the basis of his subsequent treatment of cholera. "One object of the paper therefore is to elicit from the members any additional evidence confirming the pathological fact itself, or tending to shew how far it could be made the basis of treatment ; Dr. Finch appeared to dissent from the treatment of Dr. McGregor, arguing, that were spasm of these ducts the essential cause of cholera, "relaxation of the spasm by bleeding, the warm bath and opiates, would be the principal means which would suggest themselves."

Mr. Webb said, that he rejoiced to see the investigation of this dire disease, with reference to its essential causes, again before the Society. It was apparent, that the views held by Dr. Finch in 1833 were precisely those published by Dr. McGregor in 1843 ; and that consequently we had ad-

vanced but little in these ten years. But Dr. Finch's views upon the subject were not known to the profession. It should be remembered, that they were transmitted to the Medical Board, in voluntary emulation of the admirable practice which exists in the royal service. They must have been unknown also, to the able author of "Diseases Affecting Soldiers in India." He (Mr. Webb) would rather infer therefore, that had Dr. Finch pursued the same course ten years ago, we might have been by so much in advance. He would rather follow Dr. Finch's example *now*, of discussing what we did know, than give way to despair even upon a subject which had exercised in vain the united powers of mind, "of the most acute observers in Europe and America," "*Nil desperandum*" should be our motto. He thought that this failure was owing to a palpable cause for this disease, having been sought for almost entirely, in some organic or structural lesions. In Europe, and America too, the pathology of solidism, had been so successfully applied to disease generally, that some had forgotten there were limits to its applicability.—He would maintain that it could not be applied so universally in this country, where, in many diseases, death occurred, before such lesions had time to take effect. He did not call in question for a moment the fact itself, of occlusion of the ducts in cholera. He had observed the fact, and had given it a permanent position in the Museum of the Medical College. But he contended that it was only a partial effect, he believed an unimportant one, of an all-pervading cause. How could it be essential, since he had seen several instances, and many others were on record, of utter and complete obliteration of the gall-ducts without any symptom of cholera. He could shew specimens where not only this had taken place, but the gall-bladder itself had become absolutely obliterated. It appeared therefore to him, that this could be no more set down as an *essential* feature in cholera than could the intussusceptions, and invaginations of the intestines, also met with; but only quoted as an effect of an universally pervading cause, which not only tortured with racking cramps and spasms, every muscle subject to volition, but even all those of the involuntary system also. It appeared to him hardly possible that the muscular fibres surrounding the stomach and first portion of the intestine, should be contracted with vehement spasm, without affecting the canal in question which brings the bile. It would, he believed, go much further to explain all the phenomena of the disease, of which this, even when carried to its utmost extent, can explain only part, viz. the absence of bile in the intestines, (which might get in fast enough if there were no gall-bladder at all) if we referred it to *spasm of all the involuntary muscles without exception*. He himself had often seen it begin with the heart, long before the stomach and bowels. It would be natural

then, that the muscular fibres of the arteries in general, with failure of their pulse should follow the spasm of the heart. (He had seen a Sepoy for two whole days without any pulse.) The bronchial ramifications, nay even the culs-de-sac in which they terminate, since they probably partake of a contractile nature, would then be closed or partly so. General coldness, blue-ness and deoxygenation of blood would follow. The bladder would contract, as we find it does, and the ureters also. No more secretion ought to take place than we find actually does continue; for the arteries should be all more or less contracted. *No bile, no urine, no saliva nor mucus, (hence the excessive thirst) *whilst a sort of transudation through the overloaded veins, alone relieves them, in the form of cold and glacid sweat; with probably the same copious watery transudation from the mucous membrane of the stomach and bowels. This explanation had occurred to him as a plausible one; and one upon which, in absence of any thing more satisfactory, he had long acted, because of its more general adaptation to nearly all the circumstances of cholera. Even the lurid echimoses, the blackish blue tinge, which gives to this malady in its worst stages, an hideousness of aspect, awfully befitting the most terrible of all the dread messengers of death; may be caused by the spasms of the voluntary muscles, forcing in the black blood where it never went before. But more enlarged views of disease had led him to seek in the blood itself for the first or proximate cause of cholera.

Mr. Forsyth reminded Mr. Webb that there was nothing spoken of *organic* lesion in Dr. Finch's paper, the lesion in question was always spoken of as spasm.

Dr. Goodeve then addressed the meeting, stating briefly that whatever might become of the theory of cholera depending upon spasm of the gall-ducts, the practice founded upon it, when tested pretty extensively in Calcutta, had been found *wanting*, at all events in the *uniform success* claimed for it.

Mr. Egerton followed with practical remarks upon the treatment.

In reply, Dr. Finch stated, that doubtless there were many cases, exclusive of those of Jaundice from impaction of gall-stones in the gall-ducts, which were rather cases of obstruction than of occlusion of the gall-ducts; and in which occlusion of these canals may have existed unaccompanied by the symptoms of cholera. But though it had been surmised that occlusion of the gall-ducts was an essential cause of cholera, it had not been affirmed that in all cases in which there was occlusion of these tubes there must of necessity be cholera, but it was stated that in cholera there must be occlusion of the gall-ducts.

In illustration of this position, we know that swelling, pain, heat and redness constitute the essential symptoms of inflammation, yet all these symptoms may be present without the existence of inflammation; they may all be caused by the temporary application of a thread or ligature round the finger without exciting inflammation, but this morbid state cannot exist in the absence of these several symptoms, they are essential to its existence.*

They may be found together without inflammation, but inflammation nowhere exists without them; so occlusion of the ducts may exist without cholera, but cholera may not without occlusion of these tubes.

In regard to Mr. Webb's opinion, that we must look to the morbid changes, or altered condition of the blood which occurs in cholera, for the proximate cause of this disease, Dr. Finch said, it was only necessary to refer to the numerous researches and their results, as to the changes which the blood and the other fluids of the body undergo in cholera, to prove how very unsuccessful this course of inquiry had been. The experimental inquiries of Dr. W. B. O'Shaughnessy, by which he first made himself known to the profession, prosecuted in 1831, with a view of detecting the changes in the blood by chemical analysis, established, that whilst the blood drawn in the worst cases of cholera is unchanged in its anatomical and globular structure, it loses a great portion of its neutral saline ingredients and its pure alkali. The practical inference deducible from these results was, the necessity of supplying these deficiencies, and accordingly all the salts which were said to have been found deficient in the blood, especially the alkali or carbonate of soda, were administered and exhibited by injection into the veins, as well as by all the natural inlets and outlets of the body in every variety of form and quantity. Whilst it was unnecessary to recal to mind, how very unsatisfactory the treatment founded on this hypothesis has been, to convince even the most strenuous advocate of the humoral pathology of its utter fallacy.

Mr. Webb replied that he was glad to see the discussion revert from the treatment to the cause of the disease;—its essential nature, its pathology:—for upon our views of this must, after all, depend our treatment. He would not therefore again repeat his opinion, as to the value, which in this respect should be assigned to occlusion of the gall-ducts. But admitting this as one feature in a disease, which began like death, in the arrest of all animal heat, all secretion, all absorption, and sometimes nearly all circulation—for such is cholera. He would endeavour to reach a still higher link in the chain of causes.

The most uniform, the most manifest, the most constant, nay the only invariable feature was the alteration in the blood. It is always black, always

thick and tarry, and *never coagulates*. Now this very property of coagulation was long since fixed upon as manifesting its vitality. In cholera such evidence is lost, and why, because of this most *essential of all changes the death, or beginning of death in the blood*. The watery discharges from the stomach and bowels cannot be essential, for in the worst cases they are not met with. Any treatment, therefore, having for its object to restore by mechanical admixture what the blood has not lost, cannot avail. Spasms of the voluntary muscles, or cramps are not essential, for the disease may exist in the most fatal form without them or only in a trifling degree. Besides none of these can explain the cold glacial sweat, colder than the surrounding medium, the cold tongue, the cold breath, nor will, perhaps, my theory of universal spasm explain it. We must proceed further. We may understand, that like as modern discoveries have instructed us in the rapid transmission of living action, by means of living blood vesicles floating in a living plasma; so may we conceive of the rapid transmission of morbid action hurrying on the system to universal death. The blood vesicles are the carriers of oxygen, they give out or induce animal heat in their transit throughout the body; whilst the plasma renews the wasted structures. Admit a cause capable, like the bite of the rattle-snake, of suddenly affecting the whole of the blood with disease or death, and we rise at all events nearer to that we seek. We may even proceed a little further, and assign to the organic system of nerves this change in the blood. This has been explained by that eminent pathologist Copeland. But it is not evident to our sense, whilst the effect upon the blood is. The analogy also of other diseases strengthens such induction, as the hill colic of the Himalaya, and the disease lately raging in Persia, however unlike cholera in some respects, equally present as essential features, a rapid fatality, and this very alteration of the blood.

Whether we may ever mount higher still, and trace the whole to electric agency is yet to be seen. The electric thrill felt on touching cholera patients, was one of the first phenomena recorded in Europe, and it is certain that when cholera rages epidemically every case may at first be fatal, under every and any form of treatment. Whilst an atmospheric change, a storm,—a hurricane,—or rain,—may endow with revivifying powers, soda powders or even cold water; so that every case shall recover.

Dr. Finch again rose to reply, but owing to the lateness of the hour, the further discussion of this important subject was deferred till next meeting; as was also Mr. Webb's case of abscess of the frontal sinuses.

APRIL 6, 1844.

Members withdrawn.

H. Chapman, Esq., Presidency Surgeon; C. L. Cox, Esq., Assistant Surgeon, 47th N. I.

DONATIONS RECEIVED.

1. Through Messrs. Thacker & Co.

Practical Observations on the principal diseases of the European and Native Soldiers in the N. W. Provinces of India. From the author W. L. MacGregor, M. D. Surgeon, 1st European Light Cavalry.

2. Through J. Ranken, Esq.

Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London.

Traité Pratique des Maladies des Enfants, considérés dans leurs rapports avec l'organogenie et les développements du jeune âge. From the Author Professor Richard (De Nancy.)

Traité sur l'Education Physique des Enfants, a l'Usage des Mères de famille et des personnes dévouées a l'éducation de la jeunesse. From the Author, Professor Richard (De Nancy.)

The English and Foreign Medical Journals received since last Meeting, were laid upon the table.

The private business of the Society was then discussed :

I. The Secretary proposed that the printed " selections " which take up so much room in the library, be given to the Medical College, for the use of students, reserving a portion for any members who may desire them. This was seconded by Dr. Hufnagle, and carried.

II. With the same intention of giving more room in the library, it was proposed by Dr. Finch and seconded by Dr. Hufnagle and carried, that the cabinet of specimens of materia medica, be transferred to the Medical College. There they will moreover be classed and preserved, and made more available for reference.

III. It was then proposed by Dr. Finch and seconded by Dr. Eveleigh and carried, that " Vol. IX. of the Transactions be commenced forthwith." The Secretary read several letters from Mofussil members requesting to know when the next volume of Transactions might be expected.

IV. A letter from Dr. Brander was then read, dated 20th March, 1844, containing a proposition to the effect, that before the Society undertake any further publication of their Transactions the last volume published be revised, and corrected in a second edition—this was not seconded.

A discussion arose as to the expediency of giving such full reports in any other than *Medical Journals*, of the papers read at Meetings. The general feeling of the members present however seemed in favor of its continuance, as enabling both the Mofussil members to know what was doing, and also carrying out the objects of the Society, by diffusing medical knowledge among the community at large, which has so frequent occasion for its exercise, in the isolated position which Europeans are obliged to maintain in most parts of this country.

This discussion arose upon the secession of Mr. Chapman, who it appears had objected to the practice.

The following papers were then read and discussed.

I. *On protracted pregnancy.* By K. W. Kirk, Esq. M. D. Assistant Surgeon, Bundelkund Legion. In the first of these papers Dr. Kirk mentions a very interesting case which came under his care a short time ago, in which the evidence of prolonged retention is so clear that it cannot, he conceives, admit of a doubt.

He says, "the patient was a young woman, inclined to plethora, of inactive habits, and this was her first confinement, which she warned me would take place, more than two months previous to the event : my impression in the interval being that she was at error in her reckoning, which in the inexperience of a first pregnancy is a common circumstance. The child was still-born and as it lay was twenty-three inches and three quarters long, having breadth and development in proportion, and had I stretched the limbs it would have measured more even than this, whereas children of common size are at birth seventeen or eighteen inches ; this was therefore doubtless retained in utero, so far beyond its time, that it attained to six inches taller than usual, having proportional breadth, and development, and increased firmness of the bones, especially those entering into the formation of the skull, rendering labour so extremely difficult that nature alone was insufficient to effect it.

"This is an interesting case in a medico-legal point of view, adding one proof more of the inaccuracy of the law relating to the duration of pregnancy, which fixes the range thereof from six to ten calendar months."

II. *Simplified operation for Hydrocele.* Recommended by K. W. Kirk, Esq. M. D. Assistant Surgeon.

III. *On the effect of change of climate on the health of the Native Army.* By C. Finch, Esq. M. D. Presidency Surgeon.

Dr. Finch's able and elaborate essay comprehending a great variety of topics of most vital interest to the native army, as regards both its comfort and efficiency was read to the Society by the author himself. It supplies

information that had long been desired. In 1835 the late Dr. L. Malcolmson, formerly Secretary to the Medical Board at Madras, directed attention to our want of information respecting the effects of change of climate upon the native army, as respects removal from the upper to the lower provinces of the Bengal Presidency, and our ignorance regarding the length of time requisite to recover from it.

It has three divisions.

I. The effects of change of climate on the health of the native army.

II. The diseases that are caused by the change, from the dry climate of Hindostan to the moist one of Bengal.

III. The period of residence necessary to produce disease and to restore the health of a regiment, which has been deteriorated by prolonged service in the unhealthy climate of Bengal.

This brief analysis will shew, what Dr. Finch regards as primary agents in causing the sickness and mortality among the native troops, when stationed in Bengal, and what the subsidiary ones.

To diversity of climate is primarily ascribed the prevalence of disease, and its destructive effects upon the health of corps, on duty in the lower provinces.

The evidence he adduces in illustration of the first division of his subject, is taken from the Hospital returns, of casualties of three regiments, continued for three years at a station, in the upper provinces; contrasted with those occurring in the same regiments stationed for nearly an equal period in Bengal. These he has condensed into tabular abstracts.

It is evident from these tables that there is a great increase in the sick of regiments, on their removal from a station above, to one below; and it further distinctly appears that *this increase is progressive, in each successive year, and that the third year is by far the worst.*

Thus the abstract of the register of sick of one regiment N. I. shews that while the per centage of sick to strength, during the *third* year of the stay of the regiment at Benares, (the year 1837,) was 55 4-5ths, the ratio of sick to efficient men was upwards of 84 (in 1840), in the *last* year of its residence in Bengal.

The admissions into hospital of the 57th N. I. were more numerous, in the *third* year of its stay at Barrackpore, than they were in the *third* year of its location at Benares.

In reference to the fatality of this the third year, Dr. Finch remarks, "Much misapprehension may arise if the first two years' stay of a regiment in Bengal be taken as a standard, by which we are to judge of the salubrity of its climate. By confining our observations to the first two years, the

rate of sickness may not be much higher, even, than at stations in Upper India, but the triennial period of residence, has been taken as the measure of the degree of salubrity of different climates, and indeed a larger period might be fixed upon for greater accuracy, but that taken was the usual length of stay at one station."

With the view of exhibiting the fatal effects of a Bengal climate on the native soldiery, Dr. Finch has followed out the principle of tabular comparison, contrasting the mortality above, with that which occurs below. These tables of casualties represent a progressive increase of mortality, during the years the regiments were in Bengal; and establish a similar fact regarding sickness, that it also is in relation to the stay of troops in Bengal.—The longer the regiments are below, the greater the number of sick, and also of deaths.

During the three years residence of the 3rd N. I. at Mynpoorie, this corps lost by deaths but twenty-six men.—During the succeeding three years in Bengal, it lost 203. The per centage of deaths to strength has augmented from 1 4-7ths, to the ratio for the year 1835, when it experienced its greatest loss at Mynpoorie, 16 per cent. on the strength in 1840 at Barrackpore.

The 57th N. I., in the three years it was stationed at Benares, lost 53 men—in the three years it was in Bengal, the casualties amounted to 840.

The highest ratio of mortality to strength in the 57th, was 2 per cent. in 1837. And this rate rose so high by the casual visitation of cholera, under which the corps suffered in that year; but how insignificant is this preportion even compared to that of the second year of its stay in Bengal, when it rose as high as $8\frac{1}{2}$ and nearly doubled this rate in the *third year*, at Barrackpore; when it amounted to $16\frac{3}{4}$.

A very superficial examination of these tables leads to the conviction that the *third year*, is pre-eminently *fatal year* of the residence of Native corps in Bengal.

On the fatal effect of a prolonged residence in Bengal on the health of native troops Dr. Finch observes, "If the casualty-returns, for the first two years, of the service of a regiment in Bengal, were taken as a criterion of the fatality of the climate, they would give a very fallacious result.

"The climate of Bengal is not very destructive during the first two years. In regiments that have completed two years and are in the *third* of their stay, we see disease and death committing great ravages, other corps whilst they have been but one or part of a *second*, may not yet feel the fatal effects of its climate but continue healthy. Some indeed may not have more casualties, than they might have had in stations in the North-west Provinces."

This brief account is necessarily restricted, and must leave unnoticed Dr. Finch's observations on the subsidiary agents, or predisposing causes of sickness, in the sepoy corps, when in Bengal; such as change of food, water, the nature of duty, &c.: on these he does not lay much stress. He regards these more as auxiliary to frequent relapses from tardy, or unsatisfactory convalescence, than exerting any great power in disposing to the endemic diseases or disorders peculiar to Bengal. However, some very important remarks have reference to the additional burden thrown on the non-effective establishment, by the necessary transfer, annually, of a large body of men, whose constitutions are irremediably ruined, by a residence in the lower provinces.

But the most important deduction from this essay, is the effect of change from a *triennial* to a *biennial* relief. From this alteration in the system of relief it seems that the troops serving in Bengal are indebted to Dr. Finch's reports of the sickness and mortality of the troops of Barrackpore, made in 1840. Three years having elapsed since the resolution of Government has been acted upon, there has been time therefore to test the efficacy of this measure in counteracting disease and death, and Dr. Finch has established the wisdom and policy of this salutary measure by irrefragable testimony.

The following data give the results of that judicious and humane boon to the native army.

In 1840 the average strength of the force stationed at Barrackpore was 5441, the number of sick 5842, and of deaths 293, giving a ratio of sick to strength of 115-1, and of deaths to strength as 5-3.

In 1841 the average strength being 5834, the sick 6518, the deaths 243, the ratio of sick to effective men 111-7 and the ratio of deaths to strength as 4-1.

In 1842 there was 4629½ effective men at Barrackpore, the admissions into Hospital were 6478, and the ratio of sick as 139-94; there died of this force 151, giving a ratio of 3-2.

In 1843 the average strength of the troops cantoned at Brackpore was 5235, the number of sick 5354, and of deaths 120, the ratio of sick and deaths respectively 102 and 2-2.

These returns exhibit a decreasing rate of mortality each successive year, since the substitution of the shorter period of service at Barrackpore.

In 1840 the ratio of deaths to strength was as high as 5-3.

In 1841 it was as 4-1.

In 1842 it was as 3-2.

In 1843 it was as 2-2.

And it would appear that the reduction has become 1 per cent. on the annual mortality, which in so large a body of troops amounts to no inconsiderable number. In 1840 the total number of casualties was 293; the next year it was, in a larger force, but 243.

This difference in the mortality is clearly referrible to the adoption of the triennial period of relief, for the climate is the same, the locality unchanged, the discipline not altered, the duty equal. The habits of the men in regard to food, water and shelter identical, in the present and former years. But there is this important distinction between the native corps that have been stationed at Barrackpore since 1840, and the regiments cantoned there prior to that year; none have served more than two years at that station, while formerly there was always a portion of the force which had exceeded two, or were in the third year of their service at that station, and to the shorter detention of troops in this uncongenial climate must be attributed the reduced sickness and the diminished mortality.

Mr. Forsyth spoke at some length upon the subject of Dr. Finch's communication.

The Secretary proposed that it should be published, which Dr. Finch very kindly accorded. Mr. Webb said, before sitting down he would beg to call the attention of the members to *a new and most efficacious, and yet universally practicable plan, of repressing hemorrhage from the nose*. He had seen it first detailed in one of the French journals, he believed the "Encyclographie des Sciences Medicales," and it was simply this, to make the patient hold up one or both arms, perpendicularly above the head, when the bleeding from the nose would instantly and effectually cease.

In the first case he had tried it, the man, a European soldier, was absolutely exhausted by continued hemorrhage, several pans were filled with bloody rags. The man had nasal polypus, and plugging the posterior nares was impossible. He was too weak to hold up his hands, but the instant they were held up by others, the hemorrhage ceased. On being met with two days after, he said, "Oh, Sir, I have no fear of it now, *I can always hold on by the bed post.*"

Another case had kept a medical officer in harrassing attendance, and Mr. Webb had been asked to relieve him. He found the patient very blanched and pale; and a serious expression on the face of his friends. Mr. Webb brought up a large screen, put one hand of the patient upon the top, and kept it there. The bleeding stopped as by magic. On meeting this officer, out riding some time afterwards, he expressed himself much pleased with the simplicity and certainty of this plan of cure.

A third case had also occurred to him within a few days. A sergeant's

wife had been delivered of twins. The day following, a furious bleeding of the nose came on, and dreadfully alarmed both her and her family. On Mr. Webb's arrival he ordered her to be supported upright in bed, and both arms secured upright to the bed post. To the astonishment of all and the delight of the poor woman (who considered this only preparatory to an operation), the bleeding instantly stopped and never returned.

These were all the cases in which he had tried—it succeeded in all.

A discussion followed upon the *modus operandi* by Messrs. Goodeve, Webb and Jackson.

JULY 6, 1844.

The proceedings of the last meeting having been read and confirmed, the Secretary read a letter from Sir J. McGregor, Director General of the Army, Medical Department, conveying his thanks to the Society for the last volume of the Transactions.

A note from Dr. Sprenger was then read, offering the use of his most valuable library for the use of the Society, during his absence from Calcutta, and making it over for that purpose to the Society's Librarian.

The thanks of the Society were unanimously voted to Dr. Aloys Sprenger.

The thanks of the Society were also voted to Dr. W. L. Macgregor, for his valuable work on the Diseases of India.

The Secretary then laid upon the table the Journals, and other periodicals, received since last meeting.

The following papers were then read and discussed :

I. *A case of successful Operation for Osteosarcomatous Tumor of the Lower Jaw.* By R. O'Shaughnessy, Esq.

II. *Cases of Splenic Scurvy and the use of large doses of Quinine in Spleen disease.* By Allan Webb, Esq.

Considerable interest was excited by Mr. O'Shaughnessy's valuable case, and it was requested that he would allow it to be published, as well as the very characteristic drawing by Mr. Daly, in the present volume of the Transactions now in the press. This having been acceded to, it is printed accordingly.

NOVEMBER 6, 1844.

MEMBERS ELECTED.

A. Grant, Esq. Assistant Surgeon, Bengal Service,
James Allan, Esq. Assistant Surgeon, ditto ditto.

MEMBERS PROPOSED.

Dr. Bedford, Assistant Surgeon, Bengal Service, by Dr. Finch, seconded by Dr. Goodeve.

John F. Clarke, Esq. M. D. Inspector General of H. M.'s Service, by Dr. Stewart, seconded by Dr. Wallich.

MEMBERS WITHDRAWN.

M. Lovell, Esq., Surgeon, on his return to Europe.

G. Eveleigh, Esq., on his return to the Cape.

DONATIONS RECEIVED.

I. Pathologia Indica, from the author, Allan Webb, Esq.

II. Madras Quarterly Medical Journal, from the Editors.

III. Madras Journal of Literature and Science, from the Editor.

IV. Transactions of the Medical and Physical Society of Bombay, from the Secretary.

V. American Journal of the Medical Sciences, received through Dr. Hufnagle.

VI. Dr. Robt. Lee's beautiful work on "the Nervous Structures of the Uterus," through Dr. Goodeve.

VII. A complete series of the Journal de Medicine de Bordeaux from M. Le Professeur Gintrac.

THE PRIVATE BUSINESS OF THE SOCIETY.

The appointment of Mr. Tucker as Librarian in room of Mr. Colton deceased.

Passing Messrs. Allan and Co.'s account for £24, 12, 1, for books furnished to the Society.

1. The Secretary then read the following note from Dr. Mouat, forwarding this query from Dr. Spilsbury. This led to an animated discussion, the general opinion of the Society seemed to be that the Eurasian race could propagate itself without further infusion of either black or white—Asiatic or European blood.

Note.

Dr. Spilsbury has requested me to bring the enclosed question to the notice of the Medical and Physical Society, with a view to its being discussed and his obtaining information on the subject:—

A is the son of a European parent by a native woman—B is the daughter in the same way—A has a son C—B a daughter D—D and C marry.

Query. Will the children of D and C live to maturity, and if they do and marry a grade equally removed from European and native as themselves, will their children live if they have any, or in other words, will not the Indo-

Fig.1



Fig.2

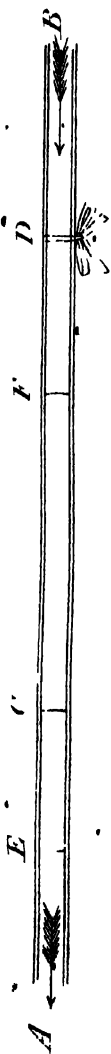


Fig.3

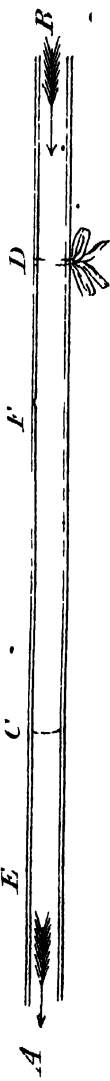


Fig.4

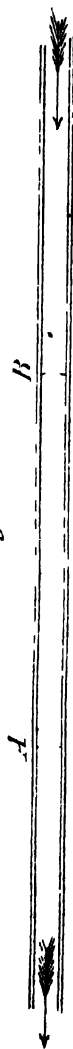


Fig.5

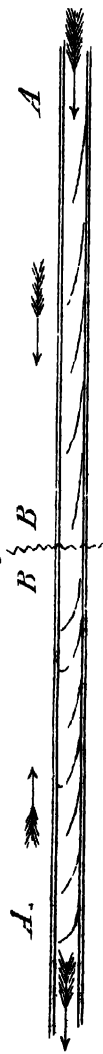


Fig.6



British breed be extinct in the 3d or 4th generation, provided no nearer approach to Indian or European blood is made? What is the fact?

Yours, &c.

FRED. MOUAT.

To A. Webb, Esq., Sec. Med. and Phys. Soc.

2. Read a letter from M. Professeur Gintrac de Bordeaux, thanking the Society for the "Transactions," enquiring whether or not he had been elected a corresponding member, and forwarding copies of his works. The Secretary was requested to certify M. Professeur Gintrac of his election at a former meeting.

3. The Secretary then read a letter from Dr. O'Shaughnessy forwarding a memorandum and sketch of experiments upon the circulation, by Dr. George Wallich.

They are as follows:

EXPLANATION OF PLATE.

Fig. 1. Represents a portion of vein, the course of the blood tending from B to A.

If at the point C pressure be exerted and carried along to the point D, the space over which this pressure has travelled will be deprived of its blood, or in other words the quantity of blood contained within the above points will be urged by a retrograde movement beyond the point D. The space intermediate betwixt C and D will remain collapsed, and a boundary be formed by the abrupt surface of blood undisturbed at C. This boundary will continue so long as the communication is interrupted at D.

Fig. 2. Let a ligature be now firmly tied at the point D. If pressure be applied, say an inch higher up the vein, at E, and carried again in the direction of D; the blood contained betwixt E and C will be propelled backwards and will occupy an area corresponding to its bulk, from the point F to D. That is so long as the pressure is maintained at F. And now the upper boundary will be formed by the broken surface of blood at E, which boundary will likewise remain defined and stationary, so long as the pressure is exerted at F.

A curious fact must here be noticed—namely, that the first displacement of the portion of blood between C and D, will be effected without sensible resistance, whereas the removal of the second portion from E to F, will be accomplished only with a considerable *valvular* opposition.

Fig. 3. If now the pressure at F be suddenly taken off, the blood betwixt F and D will, with astonishing rapidity, resume its former position from E to C, at which last point the boundary will once more be maintained. The

same result will follow the application of a ligature below, and the removal of that at D.

Fig. 4. If, at the point A pressure be exerted so as to propel the blood backwards on to B, *no reflux* from A will occupy the intervening distance. But if a ligature be applied at B and the blood be propelled *onwards* to A then a *reflux* will occur on the pressure at A being removed!!

The deductions from these facts appear to me to be these:—

1st. That no “*Vis a tergo*” can be requisite or does operate to any extent in urging the venous blood back to the heart, otherwise its momentum would be communicated to, and would drive on, the globules of blood at and above C, Fig. 1, in a direction toward the heart.

2ndly. That no contractile power of the coats of the veins assists in propelling the blood in its usual direction, otherwise it would propel the globules onwards in the direction of the heart at the point C, Fig 1, notwithstanding the interruption of communication at D.

And *thirdly* that the two last deductions shew clearly that some other propelling power is active in carrying the portion of blood isolated between E and D back to F.

The *modus operandi* I suggest, (with some fear and trepidation I admit,) by which these phenomena can be accounted for is,

Firstly. That the motive power exerted in carrying on the circulation through its entire circuit, is the production of a vital attraction and repulsion kept up between the globules of blood in the heart, arteries, capillaries and veins. The change from attraction to repulsion taking place in the heart and capillaries, and being effected by the alteration in the nature of the blood at these points, and

Secondly. That the propelling power thus created is essentially a galvanic power.

The explanation I would offer of the curious phenomena exhibited in experiment Fig. 4, will be seen in Fig. 5, where the positions of the valves would be somewhat in the manner of those attempted to be delineated at A B and B A, according as the direction the pressure employed took.

Fig. 6, is intended to shew that the axes of rotation of all the globules must be similar, as any impulse urging them forward in one given direction would be incompatible with any other series of axes.

Having now most hurriedly delivered myself on the above, I must leave the matter to the lenient discussion of those who take interest in the phenomena deducible, and should mention that the burden of the experiments were performed on my own arm and the limb of a single cat.

G. WALLICH, M. D. 59th Regiment, N. I.

Neemuch, 10th May, 1844.

An interesting discussion followed, as to the degree in which the heart's action influenced the capillaries. Dr. Finch contended that it was sufficient with the aid of respiration alone. Dr. Stewart conceived the plastic power of the arteries had much to do with it. Mr. Egerton said that we might admit all these as exerting a necessary influence. Dr. Goodeve said that there was probably galvanic agency developed in the blood itself which assisted. Mr. Webb adverted to the Hæmadynamometer, as proving that the heart could suffice to circulate the blood in the capillaries, but at the same time, as it is known that the capillaries are in some parts (muscle for instance) less in diameter than the blood globules, that these last elongate *themselves* to pass through, there must be something more than the heart requisite. Dr. Bedford contended for the all-sufficiency of the heart's action. Dr. Wallich (senior) shewed that in some plants, the *cara*, there were distinct circulations visible in their whole circuit; that as plants had neither heart nor living vessels the moving power must be looked for elsewhere; that by tying the vessel in the *cara*, the circulation was found to go on, up one side and down the other of the same vessel, between the ligatures.

Mr. Webb said that the question before the Society was not the capillaries but the veins, that the existence of a circulation in them independent of the heart was shewn in animals without hearts, and in a cardiac *fœtus*. Whilst it was a doctrine held by the old masters, as Vesalius, that in some vessels, the *vena portæ* for instance, there was a double current similar to what Dr. Wallich had described going on.

Dr. Wallich said he would resume the subject at next meeting.

The following papers were then read:—

- I. A description of a new form of Eruptive Fever in Calcutta.
- II. Cure of a case resembling Phthisis, by Dr. Goodeve.

It was the opinion of Drs. Egerton, Stewart and Finch that the roseolous or rubeolous eruption, accompanied with swelling of the hands, which Dr. Goodeve had fixed upon as demonstrating its distinction from every other known form of fever, was only a casual symptom, which occurs in the persons of new comers, of fair complexion and light-coloured hair, on their first attack of fever.

Dr. Stewart further observed that the disease did not merit the designation of an epidemic, as it had been confined to a few persons and those new arrivals.

DECEMBER 7, 1844.

Members Elected.

Dr. Clarke, Inspector General H. M.'s Service.

Dr. Bedford, Bengal Medical Service.

Donations to the Society's Library.

Dr. D. Stewart's Report upon the Small-pox.

The British and Foreign Journals received were then laid upon the table, and the following papers were read and discussed:—

1st. Papers—Continuation of Dr. Kirk's papers on *Congestive Typhoid Fever*.

2nd. *Memoir on the field-carriage of the sick and wounded Soldiery in the Bengal Army.* By J. SPENCER LOGIN, Esq. M. D.

The very valuable paper of Dr. Kirk's which was brought to a conclusion at this sitting, is too long for analysis, which is the less necessary as the whole of it is now printed in the Transactions. The President, Dr. Wallich, said that he considered it one of the most valuable contributions received by the Society. The Secretary in a long address to the Society pointed out its chief peculiarities, and its bearing upon practice. That it was in fact a bold and successful attempt to revive and to apply the old humeral pathology to the investigation of fever—aided by all that additional light which animal chemistry and recent examination of the different secretions of the body have afforded the subject.

The able memoir of Dr. Login was received with great attention by the Society. It is so concisely drawn up and his conclusions so precisely deduced from the facts brought forward, that any reduction would only be injustice to it. The following extracts will give some idea of Dr. Login's views upon this important subject:—

"The Litter which I propose to substitute for the present doolie is shewn in the accompanying sketches. It consists of several jointed frames made of strong bamboo with cane-work—lacing, moving within another frame of the same material. This latter frame is supported on folding legs, and by means of handles, sliding within the hollow bamboos of which it is constructed, it can be carried like a common hand-barrow. Another moveable frame, which can be detached from the outer one when not in use, serves to support a cover for protection against sun or rain.

"The advantages of a litter of this construction, as compared with the common doolie, are, that by a slight modification of the position of the frames, it may be made to serve the purpose of an admirable Hospital Cot,

or as a camp bed for Officers. While, as a conveyance for the transport of sick or wounded men, not only can it be so modified as to be carried by camels, on carts, mules, elephants, ponies, &c., according as they may be most easily procurable, but when bearers alone are used, it can be carried by two men with the greatest ease, while litters which are not in use may be packed up and carried.

"From the attempts to make it applicable to its purpose in these various ways, it may naturally be thought to be complicated and of difficult construction: a slight inspection of the machine will, however, shew that the most ignorant person may be made to understand the principle on which it is constructed, and the various modes of using it, in the course of half an hour.

"Besides, it must be remembered that the occasions on which it is necessary to change it into its various shapes occur but seldom, a circumstance often overlooked when examining the different modes of using the machine; and that for the purpose for which it will be most frequently required, a bed, or a doolie, all that is necessary to convert it from one to the other, is to pull out the handles and adjust the cover!

"Then, with respect to the difficulty of construction it has been my object to make the litter up in the simplest manner with bamboos, strongly fastened with green hide, and in such a manner as the rudest village carpenter can do without any difficulty, (and on this account I prefer the bamboo to wood or iron, which require better workmanship,) and as a substitute for screws and nuts, which are not always procurable, I have adopted a simple pin (Fig. 22) which with, (when necessary,) a turn of string to tighten it, has been found to answer every purpose admirably."

Dr. Logan adds, the organized establishment which he would propose to substitute for the present doolie-bearers.

"The want of any discipline, or even of efficient control over the immense establishment of doolie-bearers attached to an Indian army has long been acknowledged, and the effects of it are to be seen even when Troops are marching through a friendly country; for it is notorious, that by no class of followers (if we perhaps except Surwans) are petty depredations more frequently committed than by the doolie-bearers. To prevent this marauding as much as possible I would propose,—

1st, That a certain number of men called "Hospital Lascars" be attached to each Troop or Company "as a permanent establishment" under every circumstance, and that they wear an appropriate military dress.

2nd, That a proportion of non-Commissioned officers be attached to them, as Naicks, Havildars, &c.

3rd, That the establishment attached to each corps be under charge of the Regimental Quarter Master.

4th, That their duties in encampments be, to have charge of all the litters attached to each corps, to furnish a daily party for the carriage of the sick from the lines to Hospital, and a sentry or sentries at the Hospital to preserve order and regularity in the wards : and to report to the Hospital Serjeant any inattention on the part of the native attendants on the sick. They may also furnish orderlies to the Medical Officers, Steward, &c., and may accompany convalescents during their morning and evening airings. Those off duty to be paraded regularly by their non-commissioned officers, and to be instructed in the different modes of using the litter in the field.

5th, That they wear belts, and a sword, similar to the Gun Lascars on all occasions of duty, except when employed for the carriage of sick.

6th, For Native Corps, it is supposed that one Hospital Lascar, for each Troop or Company, will be sufficient, with a staff of two Naicks or a Naick and Havildar.

7th, For European corps, four Hospital Lascars for each Troop or Company may be necessary, with a staff of four Naicks, two Havildars, and a Jemadar.

The manner in which an establishment of this kind should be employed in the field will depend upon the mode in which it is proposed to convey the sick, whether by bearers, or on camels, carts, &c. In the former case, I would propose that the permanent Hospital Lascars, attached to each Troop or Company, be made acting Naicks, and placed in charge of a certain number of litters, with the coolies or bearers attached to them, and that they be required to report and bring to notice, through their officers, any irregularity on the part of those under their command. As the proposed sick litters can be easily carried by two men, a party of four hired bearers, or coolies will be sufficient for each, and if we suppose that every acting Naick takes charge of three litters, there will be 12 men under his command.

From this party he can supply, when necessary, one or perhaps two persons by roeter to attend on the Patients in Hospital, on arrival at each encampment, or during a halt at any place. When more than two litters are carried spare, they should be packed up in sets of threes, to be carried by one set of bearers the other eight bearers being available to assist the laden litters up. By this arrangement, and the greater lightness of the litter, not only may the sick be conveyed with greater ease, and under protection of the corps, during the march, but much fatigue will also be saved to the bearers, which they are obliged to undergo under the present system.

When camels, carts, or any other description of carriage, besides bearers, are employed, the duties of the Hospital Lascars, in the field, are somewhat different. As there may be many cases of sickness in which the patient cannot bear removal in any other way than by litter or doolie carried by men, it is not expected that any other description of carriage will entirely supersede it.

It is desirable, and indeed necessary, that for the carriage of such cases, and for the purpose of bringing off wounded men from under fire, there should always be a proportion of such litters. Over these, one of the most intelligent of the Naicks or Havildars of the Hospital Lascar Establishment should be placed, with as many privates as acting Naicks as may be required, and the duties of these are as I have already described them.

But when camel, or other carriage is employed, to the extent I would propose, the greater part of the Lascar establishment become available for the duties which I now proceed to mention. I shall suppose, for illustration, the case of a European corps of 1000 fighting men, or perhaps I should, more correctly say consisting of ten companies, to which under present arrangements 100 doolies are assigned for their sick carriage in the field. As it seldom occurs, when commencing a march, that it is necessary to carry more than say 60 sick, I would propose the following scale of establishment—

- 10 litters carried by bearers,
- 50 do. on 25 camels,
- 40 do. spare on say 8 do.

As the sick increase, the litters may be mounted on the commissariat camels, which daily become spare.

When a Commissariat Dépôt is formed, additional camels may also be procured, if necessary, or a dépôt Hospital may be established to receive the worst cases; or, if either of these arrangements are objectionable, the syces, grass-cutters, or even men from the ranks may be temporarily employed, for a few days, in carrying up the sick, until spare camels, carts, ponies, or other carriage can be procured from the Commissariat as their supplies are daily expended, or until villagers can be employed from the district through which the troops are marching. As the camels march at a much slower rate than the troops, a guard becomes necessary to accompany them, and under ordinary circumstances, the Hospital Lascar Establishment under their non-commissioned Officers, and the Hospital Serjeant or Havildar, will be sufficient for this purpose.

In the event of the camels breaking down on the road, they can readily adjust the litters, and a party can be detached to carry the sick into camp without waiting (for hours perhaps as is now the case when camel carriage is used) for the arrival of a fresh camel. In a European corps, when in

camp, the Lascar establishment can furnish, under this arrangement, a sentry or sentries for the Hospital (for which a party from the Native Infantry is now required), and perform all the duties required of them in cantonments, with the addition of superintending and assisting in the loading and unloading of the hospital camels, striking or pitching the hospital tents, arranging or adjusting the litters as cots in hospital, &c. A part of them may also be employed in collecting the camels when required, superintending their grooming, feeding, &c.

Further I would suggest, that on all occasions when the troops are under fire, it be their especial duty, in preference to any hired bearers, to man the litters for carrying their wounded comrades off the field. In Native corps, a part only of these duties will be required of them.

We must now proceed to consider the advantages of the proposed litter, as compared with the common doolie, with reference to *the number of followers required for each*, their relative expense, and the compactness with which they may be carried in the field.

I have already shewn, that with the present doolie, an establishment of nearly 700 followers is required, for every European Corps of ten companies, in the field. For the litters, the number of followers required will vary according as bearers, or other modes of carriage, are adopted to their full extent. When bearers alone are employed the complete number of followers required will be,—

Hospital Lascars.....	47
Bearers.....	400
Extra followers (say).....	50
<hr/>	
Total,	497

and when other modes of carriage are in use, the numbers may thus be estimated—

Hospital Lascars.....	47
Hired Bearers for 10 litters.....	40
Say Camel drivers, Hackerymen, &c. . .	16
Extra followers (say).....	12
<hr/>	
Total,	115

There thus appears, in one case, a reduction of 203, and in the other, of 585, on the present doolie establishment. This, however, is not the only advantage, in this respect, to be gained by the adoption of the litters, for in addition to it, there is the substitution of a smaller number of men under control and discipline for a larger number of notorious marauders; while at the same time, by being able to employ other camp-followers, or even men from the ranks when required, there will be less risk and inconvenience from the desertion of bearers.

Although the reduction of followers in Native Corps may not be proportionally so great, there is little doubt that, if we take into account the greater diminution, which the proposed system may effect in the Field Hospital Establishment, the average reduction will fall little short of this, throughout the army generally.

The secretary said, that he regretted very much that it was too late to publish in this volume the very careful plans and characteristic drawings of these litters, where elephants, camels, and yaboos, &c. are employed, which Dr. Login had got lithographed at Lucknow. But he hoped to see them incorporated in the next volume.

In a letter which he had since received Dr. Login says,—

“ Besides, they have been since so much improved that they have scarcely any resemblance to the original ones, among other improvements reduced in length by a foot, and made more compact and portable. Of course I cannot expect you to take so much interest in this subject, not having had opportunities of seeing its importance.

“ You may have some idea of it when I tell you that it embraces no less than an attempt to reduce the number of *followers, marauders, plunderers*—with each regiment in the field for the *mere carriage* of their *sick* from 700 to 115 *disciplined* men, who can *defend* themselves, and the sick when necessary. And that besides adding greatly to the comfort of the sick and wounded, I hope to be able to *save* the Government certainly not less than 1,200 Rupees per month, and sometimes, as in Affghanistan, (when each set of bearers for a corps cost them 12,650 Rupees monthly,) as much as Rupees 8,000 per month, for the sick carriage of each European Regiment.”

The secretary then brought before the Society a letter received from Mr. Robertson, of Manchester, requesting information respecting the age of puberty in Hindu females as evinced by the appearance of the menses. He says, “ I have no doubt that any of your medical men, by the help of the native midwives or other practitioners, might ascertain the fact in a number of instances (say in 20 or 30) which though a small number would be of great value. You will find every body in Calcutta firmly of opinion that Hindu women come earlier to puberty than Europeans. Now an *opinion*, a *conjecture*, an impression, concerning this point does not weigh with me a straw. I must have facts. For example, it is necessary to *know* what is the *present* age of the woman, and next the age at which the menstrual change took place.

Unless the *present age* of each individual woman is known there can be no reliance as to what she may say about the age when she began to menstruate. If you could enlist two or three friendly medical men,

each one ought to fill up a table in this form. Instead of the women's names they might insert running numbers, thus :—

Woman's name.	Age at present.	Age when first menstruated.
No. 1		
— 2		
— 3		
— &c.		

Let the following questions also be answered :—

1st. What is the earliest age at which you have known a Hindu woman give birth to a child ?

2nd. What the most advanced age at which you have known a woman bear a child ?

3rd. Is it true or otherwise that there are many woman who begin child-bearing before the age of fifteen ?

4th. What is the age in general, when menstruation begins in Bengal in the Hindu ?

5th. To how late an age have you known menstruation continue ?”

The secretary said that he would at the next meeting lay before the Society such information as he had been favored with upon the subject.

Dr. Stewart said that he would assist in the inquiry.

Dr. Brander suggested the propriety of ascertaining from the Hindu authorities, ancient and modern, their own views upon this question.

JANUARY 6, 1845.

The secretary observed that he had much pleasure in laying before the Society the information promised at last meeting respecting the time at which the Hindoo females become nubile.

ON MENSTRUATION AMONG HINDUS.

By Bābu Madusooden Gupta, Native Demonstrator of Anatomy, Medical College, Calcutta, and Honorary Member of the Medical and Physical Society.

At the request of my friend, Dr. Webb, I have the pleasure to forward to the Society the testimony afforded by our most authoritative ancient writers upon this subject, and also the result of my own experience.

1st.—SUSHRUTA says, “The menstrual discharge begins after the twelfth and ceases after the fiftieth year. The discharge returns every month and lasts for three days.”*

* सुश्रुतः ।—रसादेव रजः स्त्रीणां मासि मासि चर्षं वर्तेत् । तद्वर्षाद्द्विदशे वृद्धे याति पंचा- व्रतः चर्षं ॥

Again SUSHRUTA says, "If a man under twenty-five put or insert his (*garbha*) germ into a woman younger than sixteen it will (most likely) die in the womb. Even if it be born alive it will either soon die, or he will be imbecile and weakly so long as he lives."*

2ND.—ANGIRA, one of the Hindu lawgivers, says, "That females are called *Gouree* when they are eight years old; they are called *Rohinee* at the ninth year; *Kanyaka* at the tenth year; and after the tenth they are called *Rajaswala*, or a female with menses."†

I find it enjoined in the Hindu Shastras, that females should be given in marriage before their first menstrual discharge, and that should marriage not take place until after this event, the marriage is regarded in a sinful light.

3RD.—ATRI and KASYAPA (Hindu sages) state, that if an unmarried girl discharges the menstrual fluid at her father's house, the father incurs a guilt similar to that of destroying a foetus, and the daughter becomes *Brisalee*, or degraded in rank.‡

According to my own observation, the females of this country generally arrive at the age of puberty (or womanhood) after the twelfth year, when they are fit for all the purposes of women. I think our celebrated *Manu* very judiciously fixed the time of marriage of females at twelve with men of thirty years old.§

Most of the females of this country begin to menstruate after the twelfth year or at the beginning of the thirteenth, and it continues till the fortieth, in some cases forty-fifth. At the age of ten years it is very uncommon, and it is perhaps equally rare for it to be delayed beyond the thirteenth year. When the discharge takes place it lasts for three or four days.

I have been informed by several women, that when the menstrual flux begins as early at the eleventh or twelfth year, it does not in many cases again recur for a year after this first appearance, but after that period, the secretion again takes its natural course. It may therefore be fairly questioned whether or not this, which is supposed by them to be a first appearance, may not be rather a first copulation and the result of a ruptured hymen.

* कथंवा नववर्षात् प्रायः पंच विंशतिं । अथवापि पुमान् गर्भः कुक्षिस्थः
सचिपयते । जातो वा नचिरं जीवेज्जीवेदाविकलेन्द्रियः ।

† अंगिरा ।—अष्टवर्षा भवेद्गौरी नववर्षा तु रोहिणी । दशमे कन्यका प्रोक्ता
अतजर्जं राजसूया ॥

‡ अत्रिकाशयौ ।—पितुर्मैत्रे तु वा कन्या राजः पश्यत्संस्तुता । भूषण्य
पितुःकन्याः सा कन्यादवशी कृता ॥

§ मनुः ।—विंशवर्षा नयेत् कन्यां द्वायां द्वादशवारिणी । अष्टवर्षाऽष्टवर्षी वा
धर्मं सौदति सत्तरः ॥

They also mention that females occasionally become pregnant immediately after this first menstruation.

I believe that the first menstruation occurs sooner or later according to the mode of living of the females, and the sexual excitement to which they may be subjected, as I find the first menstruation of girls of good circumstances generally takes place when they are eleven years old, even in some cases at ten years. I never observed a female of indigent circumstances to menstruate earlier than the age of twelve years.

As a general result of my investigation, I do not find that menstruation occurs at so early an age as ten years in more than one or two instances out of a hundred females.

I beg to observe to the society that it is a very easy matter for native practitioners to ascertain the actual epoch of a first menstruation, since it is the custom among Hindus to publicly notify to all the relations and guardians of the female the important fact of menstruation, and celebrate it by certain ceremonies and religious rites called पुनर्विवाह—Punur Bibāha, or second marriage.

It is the custom of the country, in these early marriages, to send the girl, at perhaps nine years, occasionally to the house of her husband, but if the husband be so distant that this cannot be done—menstruation is generally delayed till the 13th year.

Agreeably to the form furnished me by Dr. Webb, I have the pleasure to annex the accompanying

TABLE.

Names.*	The age at first menstruation.	First pregnancy.	The age at present.	Names..	The age at first menstruation.	First pregnancy.	The age at present.	Names.	The age at first menstruation.	First pregnancy.	
1	13	13	25	14	13	14	21	27	12	14	20
2	13	—	32	15	13	14	15	28	12	14	21
3	12	14	21	16	12	—	—	29	13	14	30
4	13	—	30	17	12	—	—	30	13	15	28
5	13	—	—	18	12	—	—	31	11	11	14
6	13	16	22	19	13	18	—	32	13	14	25
7	11	14	21	20	12	14	15	33	13	15	30
8	12	12	17	21	12	—	—	34	12	—	—
9	13	14	—	22	12	—	—	35	12	14	24
10	12	13	—	23	13	—	—	36	12	—	—
11	11	11	—	24	13	—	26	37	12	15	—
12	13	14	—	25	12	14	30	—	—	—	—
13	13	14	—	26	12	15	30	—	—	—	—

* The Babu was kind enough to shew me the names but did not wish them to be published.

The secretary added that another table upon this subject had been forwarded by one of the most enterprising students of the Medical College. But without the names appended, as to the table of Bāḥu, Maduṣooden Gupta.

TABLE

Shewing the time the generative faculty continues active in women, natives of Bengal, (based upon the facts of age of woman at first menstruation, age at first birth, and the latest period at which children have been born.) Drawn up by DWARKANATH-DAS BOSU, Assistant Curator, Medical College, Calcutta.

No. of cases.	Present age of the woman.	When 1st menstruated.	When 1st birth.	No. of cases.	Present age of the woman.	When 1st menstruated.	When 1st birth.	No. of cases.	Present age of the woman.	When 1st menstruated.	When 1st birth.	No. of cases.	Present age of the woman.	When 1st menstruated.	When 1st birth.
1	14	13	14	44	17	16	..	87	27	..	12				
2	24	14	16	45	17	13	16	88	34	14	15				
3	18	14	..	46	10	..	10	89	30	12	13				
4	24	14	16	47	16	15	..	90	29	11	12				
5	13	11	..	48	16	14	..	91	32	14	15				
6	20	12	17	49	15	12	..	92	39	15	..				
7	14	12	14	50	16	13	..	93	27	14	..				
8	22	12	13	51	30	11	12	94	15	14	..				
9	20	14	..	52	14	12	..	95	14	13	..				
10	18	13	15	53	17	13	14	96	16	14	..				
11	14	12	..	54	15	12	13	97	14	13	..				
12	16	8	..	55	19	14	16	98	17	14	..				
13	28	14	14	56	15	14	..	99	16	14	..				
14	13	12	12	57	19	14	..	100	20	11	14				
15	30	12	14	58	18	12	13	101	49	..	39				
16	23	13	14	59	15	13	14	102	72	..	60				
17	15	14	15	60	17	13	14	103	45	..	45				
18	32	11	12	61	16	12	13	104	51	..	50				
19	30	12	14	62	17	12	15	105	54	..	51				
20	25	13	14	63	14	10	..	106	64	..	62				
21	35	13	15	64	15	13	14	107	70	..	58				
22	31	12	13	65	20	14	..	108	45	..	40				
23	17	13	..	66	30	17	..	109	47	..	45				
24	20	12	13	67	13	11	..	110	60	..	60				
25	21	17	..	68	47	15	..	111	65	..	65				
26	18	14	15	69	47	12	..	112	30	..	11				
27	13	12	13	70	16	12	..	113	22	13	..				
28	17	14	15	71	28	10	..	114	19	10	12				
29	19	14	14	72	49	14	..	115	17	11	..				
30	21	13	18	73	36	11	..	116	21	14	16				
31	13	11	12	74	19	10	..	117	25	12	14				
32	18	14	15	75	15	10	..	118	17	12	13				
33	38	13	30	76	20	13	..	119	20	13	14				
34	17	14	..	77	35	13	15	120	18	13	..				
35	16	14	14	78	28	11	..	121	18	11	13				
36	19	15	19	79	36	12	12	122	25	11	..				
37	20	12	13	80	42	14	..	123	26	13	..				
38	14	..	11	81	39	14	..	124	25	11	14				
39	13	11	12	82	52	14	..	125	24	11	16				
40	15	11	12	83	43	14	..	126	20	8	11				
41	16	14	15	84	55	14	15	127	15	9	11				
42	17	14	16	85	23	11	12								
43	12	11	..	86	14	13	14								

* First birth.

† Twins.

‡ Died.

INSTANCES OF MENSTRUATION LATE IN LIFE.

1 Gopi Mohun Dey's aged wife	60
2 Madhub Ram Bose's wife	50
3 Gou Mohun Das's wife	65
4 Kishub Ram Bose's servant	67
5 Ramcoomar Mittra's wife	68
6 Kassynath Ghose's wife	64
7 Bindu Bun Ghose's mother	58
8 Nimychurn Bose's wife	56
9 Ram Narain Sircar's wife	57
10 Deby Kisto Dutt's wife	59
11 Boli Ram Bose's wife,	56
12 Soroop Ghose's mother	80
13 Shooobhul Taly's mother	63

* These yet continue menstruating.

LIST OF SUBSCRIPTIONS

RECEIVED

DURING THE YEARS 1843, AND 1844.

List of Subscriptions received from Resident Members during 1843.

1	Nicolson, S., Esq., for yearly contributions 1842.	..	..	24	0	0
2	Corbyn, F., Esq., for ditto ditto.	..	..	24	0	0
3	Garden, A., Esq., for ditto ditto.	..	..	24	0	0
4	Goodeve, H. H., Esq., for ditto ditto.	..	..	24	0	0
5	Jackson, J., Esq., for arrears and ditto.	..	..	64	0	0
6	Webb, Allan, Esq., for yearly ditto.	..	..	24	0	0
7	Ledlie, T., Esq., for ditto ditto.	..	..	24	0	0
8	Stewart, D., Esq., for ditto ditto.	..	..	24	0	0
9	O'Shaughnessy, R., Esq., for ditto ditto.	..	..	24	0	0
10	Chapman, H., Esq., for ditto ditto.	..	..	24	0	0
11	Vos, J. G., Esq., for ditto ditto.	..	..	24	0	0
12	Cameron, W., Esq., for ditto ditto.	..	..	24	0	0
13	Egerton, C. C., Esq., for ditto 1840,	..	..	24	0	0
14	Mount, F., Esq., for ditto 1842.	..	..	24	0	0
15	Gordon, G. J., Esq., for 1842 and 11 months 1843.	..	..	46	0	0
16	Hutchinson, J., Esq., for 4 months 1842.	..	..	18	0	0
17	Wrightson, R. W., Esq., for 8 months 1841 and 1842.	..	..	32	0	0
18	Stuart, R., Esq., for yearly 1842.	..	..	24	0	0
19	Thomson, R. M. M., Esq., for arrears 1842.	..	..	18	0	0
20	Huffnagle, C., Esq., for yearly 1842.	..	..	24	0	0
21	Bermond, Dr., for 1841 and ditto.	..	..	48	0	0
22	McClelland, J., M. D., for ½ ditto.	..	..	12	0	0
23	Nobin Chunder Mitter, for yearly ditto.	..	..	24	0	0
24	Dwarkanauth Goptu, for 4 months ditto.	..	..	8	0	0

Total, 620 0 0

During 1844.

1	Marshall, J., Esq., for 9 months 1843.	..	..	18	0	0
2	Girden, A., Esq., for yearly 1843.	..	..	24	0	0
3	Goodeve, H. H., Esq., for ditto ditto.	..	..	24	0	0
4	Jackson, J., Esq., for ditto ditto.	..	..	24	0	0
5	Stewart, D., Esq., for ditto ditto.	..	..	24	0	0
6	O'Shaughnessy, R., Esq., for ditto ditto.	..	..	24	0	0
7	Egerton, C. C., Esq., for ditto ditto.	..	..	24	0	0
8	Strong, F. P., Esq. for 1842 and 1843.	..	..	48	0	0
9	Mouat, F., Esq., for yearly 1843.	..	..	24	0	0
10	Huffnagle, C., Esq., for ditto ditto.	..	..	24	0	0
11	Bermond, Dr., for ditto ditto.	..	..	24	0	0
12	Finch, C., Esq., for 5 months ditto.	..	..	10	0	0
13	Forsyth, John, Esq., for 2 ditto ditto.	..	..	4	0	0
14	McPherson, J., Esq., for non-resident 1842 and 1843.	..	..	36	0	0
15	Eveleigh, G., Esq., for yearly 1843.	..	..	24	0	0
16	Osmond, Woodford, Dr., for 7 months 1843.	..	..	14	0	0
17	Stuart, R., Esq., for yearly ditto.	..	..	24	0	0
18	Vos, J. G. Esq., for ditto ditto.	..	..	24	0	0
19	Thomson, R. M. M., Esq., for ditto ditto.	..	..	24	0	0
20	Nobin Chunder Mitter, for ditto ditto.	..	..	24	0	0
21	Dwarkanauth Goptu, for 8 months ditto.	..	..	16	0	0
22	Eveleigh, G., Esq., for $\frac{1}{2}$ yearly 1844.	..	..	14	0	0
23	Huffnagle, C., Esq., for $\frac{1}{2}$ yearly ditto.	..	..	12	0	0
24	Mouat, F., Esq., for ditto ditto.	..	..	12	0	0
25	Vos, J. G. Esq., for ditto ditto.	..	..	12	0	0
26	Egerton, C. C., Esq., for ditto ditto.	..	..	12	0	0
27	Forsyth, J., Esq., for ditto ditto.	..	..	12	0	0
28	Garden, A., Esq., for ditto ditto.	..	..	12	0	0
29	Marshall, J., Esq., for ditto ditto.	..	..	12	0	0
30	Bermond, Dr., for ditto ditto.	..	..	12	0	0
31	Stuart, R., Esq., for ditto ditto.	..	..	12	0	0
32	Thomson, R. M. M., Esq., for ditto ditto.	..	..	12	0	0
33	O'Shaughnessy, R., Esq., for ditto ditto.	..	..	12	0	0

List of Subscriptions received from Non-Resident Members during
1843.

1 Anderson, F., Esq., for yearly 1841 and 1842.	..	..	24	0	0
2 Brander, J. M., Esq., from 1840 to ditto.	..	..	36	0	0
3 Barker, J., Esq., for yearly ditto.	..	..	12	0	0
4 Brydon, W., Esq., for ditto 1841 and ditto.	..	..	24	0	0
5 Balfour, J., Esq., for ditto 1842.	..	..	12	0	0
6 Baker, J., Esq., for ditto ditto.	..	..	12	0	0
7 Cheek, G. N., Esq., from $\frac{1}{2}$ yearly 1838 to ditto.	..	..	60	0	0
8 Campbell, A., Esq., for ditto 1842.	..	..	12	0	0
9 Cumberland, R. B., Esq., for ditto ditto.	..	..	12	0	0
9 $\frac{1}{2}$ Cheyne, C. W., Esq., for yearly 1841.	..	..	12	0	0
10 Cardew, G. S., Esq., for yearly 1842.	..	..	12	0	0
11 Collyer, N., Esq., for 11 months ditto.	..	..	11	0	0
12 Darby, W., Esq., for advance 1844 and 1845.	..	..	24	0	0
13 Demastre, T. E., Esq., for 1841 and 1842.	..	..	24	0	0
14 Dicken, W. S., Esq., for yearly ditto.	..	..	12	0	0
15 Freeman, J. H., Esq., for ditto ditto.	..	..	12	0	0
16 French, J., Esq., for 1840, 1841 and ditto.	..	..	36	0	0
17 Fuller, C. W., Esq., for 1841 and ditto.	..	..	24	0	0
18 Gordon, W., Esq., for yearly ditto.	..	..	12	0	0
19 Grieg, John, Esq., for ditto ditto.	..	..	12	0	0
20 Gibbon, A., Esq., for ditto ditto.	..	..	12	0	0
21 Griffiths, C., Esq., for 1841 and ditto.	..	..	24	0	0
22 Guise, R. C., Esq., for yearly 1842.	..	..	12	0	0
23 Goodeve, E., Esq., for 4 months 1841 and ditto.	..	..	16	0	0
24 Hart, H., Esq., for 10 months 1842...	..	..	10	0	0
25 Hunter, F. C., Esq., for arrears 1842.	..	..	32	0	0
26 Jackson, W., Esq., for yearly ditto.	..	..	12	0	0
27 Kinsey, R. B., Esq., for ditto ditto.	..	..	12	0	0
28 King, G., Esq., for 1840, 1841 and 11 ditto.	..	..	35	0	0
29 Leese, J. V., Esq., for 1841 and ditto.	..	..	24	0	0
30 Lovell, M., Esq., for ditto ditto.	..	..	24	0	0
31 Leckie, T., Esq., for yearly ditto.	..	..	12	0	0
32 Login, J. S., Esq., for 1841 and ditto.	..	..	24	0	0
33 Morton, J., Esq., for yearly ditto.	..	..	12	0	0
34 Morison, A. C., Esq., for ditto ditto.	..	..	12	0	0

Carry forward, 668 0 0

Brought forward,					668	0	0
34½	McPherson, J., Esq. for 1841.	..	..	..	12	0	0
35	McNab, D., Esq. for 1841 and 1842.	..	..	..	12	0	0
36	Menzies, J., Esq., from 1839 to 1841.	..	..	..	36	0	0
37	Marshall, J., Esq., from arrears and 1842.	..	..	..	15	0	0
38	McIntosh, R., Esq., for 9 months 1842.	..	..	..	9	0	0
39½	Mellis, J., Esq., from 1841.	..	..	..	12	0	0
40	Oxley, T., Esq., from ditto ditto.	..	..	..	24	0	0
41	O'Dwyer, J., Esq., for ditto 1842.	..	..	..	12	0	0
42	Panton, W., Esq., from 1840 to ditto.	..	..	..	36	0	0
43	Palsgrave, J. H., Esq., for 1841 and ditto.	..	..	..	24	0	0
44	Ranken, J., Esq., from 1839 to ditto.	..	..	..	48	0	0
45	Russell, T., Esq., for 1841.	..	..	..	12	0	0
46	Smith, J. C., Esq., for ditto.	..	..	..	12	0	0
47	Spilsbury, G. G., Esq., for 1842.	..	..	..	24	0	0
48	Scott, K. M., Esq., for yearly 1842.	..	..	..	12	0	0
49	Strover, T. R., Esq., for ditto ditto.	..	..	..	12	0	0
50	Smyth, Alexander, Esq., for ditto ditto.	..	..	..	12	0	0
51	Sama Churn Dutt, for 1841 and ditto.	..	..	..	24	0	0
52	Shaw, R., Esq., for 11 months 1842.	..	..	..	11	0	0
53	Thomson, T., Esq., from arrears and ditto.	..	..	..	43	0	0
54	Turner, G., Esq., for 1841 and ditto.	..	..	..	24	0	0
55	Turnbull, G., Esq., for yearly ditto.	..	..	..	12	0	0
56	Umachurn Sett, for ditto ditto.	..	..	..	12	0	0
57	Wilson, A., Esq., for 1841 and ditto.	..	..	..	24	0	0
58	White, A., Esq., for 5 months 1841 and ditto.	..	..	..	17	0	0
59	Webster, W. B., Esq., from arrears and 1842.	..	..	..	29	0	0
60	Wilson, T. W., Esq., for 5 months 1842.	..	..	..	5	0	0

Total, 1,193 0 0

List of Non-Resident Members paid during 1844.

1	Angus, G. Esq., from 9 months 1841 to 1843.	33	0	0
2	Archer, C., Esq., from 3rd quarter ditto to ditto.	27	0	0
3	Brander, J. M., Esq., for yearly 1843.	12	0	0
4	Barker, J., Esq., for 1843 and 1844.	24	0	0
5	Balfour, J., Esq., for yearly 1843.	12	0	0
6	Baker, J., Esq., for ditto ditto.	12	0	0
7	Brassy, J. R., Esq., from 1840 to 1843.	48	0	0

Carry forward, 168 0 0

LIST OF SUBSCRIPTIONS.

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	Brought forward,	168	6	0
8	Bedborough, H., Esq. for 10 months 1843.	10	0	0
9	Butter, D., Esq., for yearly 1843 and advance. . . .	20	0	0
10	Bohill, D., Esq., for 10 months 1842 and ditto. ..	22	0	0
11	Campbell, Alexander, Esq., for yearly 1843. . . .	12	0	0
12	Collyer, N., Esq., for ditto ditto.	12	0	0
13	Cheek, A. H., Esq., from arrears and ditto. . . .	39	0	0
14	Common, J. R., Esq., from ditto and ditto. ..	39	0	0
15	Cheyne, C. W., Esq., from 1841 to ditto. . . .	36	0	0
16	Cox, C. W., Esq., from arrears and ditto. . . .	22	4	0
17	Cardew, E. R., Esq., for 1842 and ditto.	24	0	0
18	Dollard, W., Esq., for 1843.	12	0	0
19	Darby, W., Esq., for advance 1845.	12	0	0
20	Duncan, A. C., Esq., for 1843.	12	0	0
21	Esdale, J., Esq. for ditto.	12	0	0
21½	Freeman, J. H., Esq., for 1843.	12	0	0
22	Gordon, W., Esq., for ditto ditto.	12	0	0
23	Gibbon, A., Esq., for ditto ditto.	12	0	0
24	Grieg, John, Esq., for ditto ditto. . . .	12	0	0
25	Hunter, T. C., Esq., for 1842 and ditto.	24	0	0
26	Hutchinson, T., Esq., for arrears and 1843.	24	0	0
27	Harrison, J., Esq., from arrears and 1843. ..	15	0	0
28	Hope, J., Esq., for yearly ditto.	12	0	0
29	Kirk, K. W., Esq., from 1842 to 1843.	36	0	0
30	Leese, J. V., Esq., for yearly ditto.	12	0	0
31	Leckie, T., Esq., for ditto ditto.	12	0	0
32	Login, J. S., Esq., for ditto ditto.	12	0	0
33	Morison, A. C., Esq., for ditto ditto.	12	0	0
34	Morton, J., Esq., for ditto ditto.	12	0	0
35	{ McNab, D., Esq., for ditto ditto.	12	0	0
36				
37	McIntyre, J., Esq., from arrears 1843.	25	0	0
38	McIntosh, R., Esq., for yearly ditto.	12	0	0
39	Mellis, J., Esq., for ditto ditto.	12	0	0
40	McRae, A. C., Esq., from arrears and 1842. ..	28	0	0
41	Oxley, T., Esq., from yearly 1843.	12	0	0
42	Panton, W., Esq., for ditto ditto.	12	0	0
43	Ranken, J., Esq., for ditto ditto.	12	0	0

Carry forward, 796 4 0

	Brought forward,	796	4	0
44 Rolfe, W. A., Esq., from arrears and ditto.	..	29	0	0
45 Sleet, J., Esq., from 1840 to ditto.	.. ..	36	0	0
46 Smyth, A., Esq. for 1843.	.. ..	12	0	0
47 Shaw, R., Esq., for yearly 1843.	.. ..	12	0	0
48 Taylor, J., Esq., for ditto ditto.	.. ..	12	0	0
49 Thomson, W., Esq., for ditto ditto.	.. ..	12	0	0
50 Wilson, T., Esq., for ditto ditto.	.. ..	12	0	0
51 Wilkie, J., Esq., from 1840 to ditto.	.. ..	48	0	0
52 Wells, W. W., Esq., from arrears 1843.	.. ..	25	0	0
<hr/>				
	Total,	994	4	0

Subsequently Received.

Kinsey, Dr., for yearly 1843.	.. ..	12	0	0
Finch, C., Esq., for $\frac{1}{2}$ yearly 1844.	.. ..	12	0	0
Cameron, W., for yearly 1843.	.. ..	24	0	0
Nobin Chunder Mitter, for $\frac{1}{2}$ ditto 1844.	.. ..	12	0	0
Stewart, D., Esq., for $\frac{1}{2}$ ditto ditto.	.. ..	12	0	0
Goodeve, H. H., Esq., for ditto ditto.	.. ..	12	0	0
<hr/>				
		84	0	0
Lovell, M., Esq., for ditto ditto.	.. ..	12	0	0
<hr/>				
		96	0	0

Statement of the Medical and Physical Society's Cash from the 11th January, 1843, to the 7th January, 1844.

1843.	January 11.	To Cash paid as per Disbursement account for January, ..	Rs.	A.	P.	1843.	January 11.	By Subscription from Members received during January, ..	Rs.	A.	P.
		To ditto ditto for February, ..	64	12	0			By ditto from ditto February, ..	72	0	0
		To ditto ditto for March, ..	55	2	0			By ditto from ditto March, ..	288	0	0
		To ditto ditto for April, ..	87	8	6			By ditto from ditto April, ..	170	0	0
		To ditto ditto for May, ..	184	4	0			By ditto from ditto May, ..	737	0	0
		To ditto ditto for June, (Messrs Rushton for Balance Rs. 91,) ..	99	12	0			By ditto from ditto June, ..	350	0	0
		To ditto ditto for July, (Thacker's Bill Rs. 58 ⁶), ..	209	13	6			By ditto from ditto July, ..	120	0	0
		To ditto ditto for August, ..	735	14	0			By ditto from ditto August, ..	82	0	0
		To ditto ditto for September, (Messrs. Thacker's 2 Bills Rs. 908,) ..	65	0	0			By ditto from ditto September, ..	103	0	0
		To ditto ditto for October, ..	940	0	0			By ditto from ditto October, ..	48	0	0
		To ditto ditto for November, ..	83	0	0			By ditto from ditto November, ..	59	0	0
		To ditto ditto for December, ..	72	0	0			By ditto from ditto December, ..	0	0	0
		To ditto ditto from 1st to 6th January, (Messrs. Allan and Co. London, Rs. 632 13 5,)....	54	0	0			By ditto from ditto 1st to 6th January 1844, ..	86	0	0
			713	13	5				1,251	7	5

DEPENDENCIES.

By one Union Bank share say at present Value,	1,140	0	0
Unpaid Bills as per Lists A. and B.			
Due from Resident Members, ..	356	0	0
Due from Non-Resident Ditto, ..	3,035	0	0
Due from Retired Members, ..	24	0	0
Total, ..	3,415	0	0

Calcutta, January 7, 1844.

(Signed) **ALLAN WEBB,**
Secretary and Treasurer, Medical and Physical Society.

Statement of the Medical and Physical Society's Cash from the 17th January, 1844, to the 4th January, 1845.

1844.	January 17. To Cash paid as per Disbursement account for January,	RS.	A.	P.	1844. January 17. By Subscription from Members received during January,	RS.	A.	P.
	To ditto ditto for February,	244	4	0	By ditto from ditto February,	100	0	0
	To ditto ditto for March,	117	9	6	By ditto from ditto March,	245	0	0
	To ditto ditto for April,	66	15	0	By ditto from ditto April,	180	0	0
	To ditto ditto for May,	198	6	0	By ditto from ditto May,	454	4	0
	To ditto ditto for June,	49	5	0	By ditto from ditto June,	212	0	0
	To ditto ditto for July,	229	3	1	By ditto from ditto July,	162	0	0
	To ditto ditto for August,	65	2	6	By ditto from ditto August,	12	0	0
	To ditto ditto for September,	87	10	6	By ditto from ditto September,	161	0	0
	To ditto ditto for October,	59	12	0	By ditto from ditto October,	108	0	0
	To ditto ditto for November,	88	12	0	By ditto from ditto November,	84	0	0
	To ditto ditto for December,	362	7	0	By ditto from ditto December,	0	0	0
	To ditto ditto up to 4th January, 1845,	3	2	0		0	0	0
	To Balance due to the Society,	143	7	5				

Co.'s Rs. 1,718 4 0

DEPENDENCIES.

Cash in Union Bank,	1 15 0
Cash in Secretary's hand,	141 8 5
By one Union Bank Share say at present Value	1,140 0 0
Unpaid Bills per Lists A. and B.	1,283 7 5
Due from Resident Members,	432 0 0
Ditto from Non-Resident ditto,	2,005 0 0
	2,437 0 0

Co.'s Rs. 1,718 4 9

By Balance in favour of the Society, 143 7 5

(Signed) ALLAN WEBB,
Secretary and Treasurer, Medical and Physical Society.

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